The Builder.

VOL. XXVI.—No. 1322.

Gleanings from French Gardens.

IT is not in the sunny, mellow, musky gardens attached to the grand old French châteaux that we must look for improved modes of gardening. It is where gardening comes within the range of commerce, where fruit and vegetables are grown to be sold, and a fortune made out of the process, that French gardeners have made strides, especially in rapid rotations of crops and in economy of space, that we ought to examine to see if the same management will benefit us. In January, 1867, Mr. Robinson visited France, to study its horticulture for this purpose. He found, as we have stated above, that large private gardens, as a rule, were not so well kept or productive as those in our country; but that where a supply for the markets was cultivated we were left far behind. In city gardening, too, the French take the lead of us; and also in the decoration of apartments with plants. He has now published his observations in an illustrated volume, in which he details the various processes that have brought about the remunerative state of things in operation.* We purpose glancing at a few of these in which constructive works are called for, leaving the details of culture to be found on reference to Mr. Robinson's very useful, careful, and timely work.

First, as to fruit. Why are our peaches and pears so inferior to those grown for us in France? Not because there is a slight difference in the climate, but because every good French fruit-cultivator does not rely entirely upon this advantage, but takes every means to equalize the sap, and keeps every tree under control. Moreover, observes Mr. Robinson, "there is not a good fruit-garden in the neighbourhood of Paris but has its walls protected by a wide temporary coping, while in numerous cases with us there is no protection at all, or but a very imperfect one. This fact speaks for itself." We think it does. If peaches and pears require this protection in the more genial climate across the Channel, how can gardeners hope to grow them in equal perfection here without it? With similar care paid to the fruit many parts of England and Ireland could grow as fine peaches as ever were grown in Montreuil, says our author emphatically. The construction required for the cordon system is of the most inexpensive kind. It is minutely illustrated in the volume before us. A simple galvanized wire, not thicker than strong twine, is extended at a height of a foot from the ground, and supported there by oak or iron uprights. To this wire the fruit is trained. By this means in France the apple is grown as an edging to the quarters in kitchen and fruit gardens. The term *cordon* is explained by a quotation from a letter from M. du Bressil, who claims to be the inventor of the mode of training in question. It is derived, he says, from the word "cord," and was applied by him to trees pruned to consist of a single branch, bearing fruit spurs only: this necessarily has much the appearance of a cord or rope of fruit. He regretted the long period that must elapse before a wall could be profitably covered by the larger form of trees, and invented this mode as a means of securing a more rapid and early return. The bilateral cordon or tree on which two branches are allowed to grow upon the stem, and departing from it in opposite directions, our author recommends as a means of covering the bottoms of walls, bare spaces between fruit-trees, or in front of pits, or other spots generally seen wasted in our gardens. The fine dessert apple, the Colville Blanche, most suitable for such positions, sells in Covent-garden for half-a-crown, and sometimes three shillings for each fruit. At Versailles a border of cordons has been tried; that is, three graduated heights of wire have been raised on the border before a wall covered with fruit, that nearest the wall being about 3 ft. high, the intermediate one 2 ft., and the lowest and farthest from the wall 1 ft.; but the shade given to the fruit on the wall by the highest cordon Mr. Robinson considers a disadvantage, and recommends that the three lines of cordons should be all 1 ft. from the ground. The wires for cordons are tightened, and thereby straightened, by a little contrivance, scarcely to be accounted a "machine," as it is called in the text, known as a *raidisseur*. It is a small oblong galvanised iron frame, about 3 in. long, through which passes an axle with a hole in it, and the wire is passed through a hole in the frame and then through that in the axle, when it is wound up and tightened just as a guitar string is wound round its peg,—only, instead of turning the axle with the finger and thumb, a key is used. Mr. Robinson strongly advocates the French mode of wiring all walls destined to grow fruit, as much neater, cheaper as far as labour is concerned, and much more durable than our mode of nailing with shreds of cloth; and as the French fruit-growers are supplied by the wire from this country, we may conclude that it would be even cheaper to us than it is to them. A row of strong iron spikes, at equal distances one above another, driven into the right angle formed by two walls, is all that is required to fasten on the wire, and all that is wanted for its support is that it should be threaded through iron hooks, which should also be galvanised, placed at regular intervals in straight lines. By this plan there are no holes made in the walls for insects to harbour in, and our author estimates that a man may do as much work along a wall thus wired as he could in six with the old nail and shred plan.

We perceive Mr. Robinson advocates "a new and cheap method of making garden walls." This is the concrete walling. Like the galvanized wire, our author found it first in use in Paris, but on inquiry learned that it was of English origin. The concrete is placed in position by the use of two frameworks of boards set up to the size of the wall required. When ready, the concrete is thrown into the space between the two surfaces of boards, and in twenty-four hours is hardened sufficiently to admit of their removal, when the framework is readjusted to form a further length. In some districts where there are great masses of clinkers thrown out from furnaces this kind of wall could, doubtless, be run up at a very small expense. Our author considers that fruit-trees could not be in a more excellent position than upon a wall of this description, smoothly plastered, and wired as above. "The temporary coping taken off after all danger from frost was past, every leaf would be under the refreshing influence of the summer rains, all the advantages of walls as regards heat would be obtained, the syringing engine would not be counteracted by countless dens offering dry beds and comfortable breeding-places to the enemies of the gardener and the fruit-tree, while the appearance of the wall would be all that could be desired." The temporary coping alluded to should be formed of narrow lengths of tarpaulin nailed on cheap frames from 6 ft. to 8 ft. long, and about 18 in. wide. "The use of such," continues the author, "on the walls devoted to the culture of choice pears, peaches, &c., would result in a marked improvement. The temporary coping has a great advantage in being removable, so that the trees may get the full benefit of the summer rains when all danger is past, and not suffer from want of light near the top of the wall, as they would if such a wide protecting coping were permanent." The netting and canvas protections in use in some English gardens is not, he considers, to be compared to this. A suggestion is made that there should be a smaller permanent coping of slate slabs or concrete strengthened with flat iron bars running across it; but neither of these copings, as shown, would bear a ladder against it. Nor should we like to guarantee the stability of concrete walls, of the dimensions mentioned, 9 in., 7 in., and even 6 in. thick, and 9 ft. and 12 ft. high, in a gale of wind without buttress supports at intervals.

There is a French mode of glazing iron greenhouses specially commended. Instead of overlapping the panes they are made to meet evenly, any little interstice there may be being filled with a particle of putty; and on the outside strips of thin lead-paper are laid over the junctions. The strip of "lead-paper," which is probably thin lead, is said to have a silvery appearance, and to have the effect of sealing the houses almost hermetically. We are told, too, of improved fruit-shelves:—

> "Instead of being confined to wide shelves or benches all round, as is usually the case, there were several sets of shelves arranged along the room—rather narrow, sloping oak shelves—supported by oak uprights. These shelves are wide enough for five rows of pears on each side, and on such a slope that the pears rise gradually, line after line, so that the eye could see each fruit with ease, without handling or disturbing any, and of course this was a great gain. But the careful constructor had gone further, by making the slight concavity upon which each line of pears rested of two laths, so that the air could flow up between them. No single fruit was allowed to touch its fellow, and thus they were in a very much better condition than in the British fruit-room, where all are frequently packed tight together, and the good ones often liable to get tainted by the bad. This was in the pear-room at Baron Rothschild's, and a more pleasing sight could not be presented to the lover of a garden—the successive shelves of splendid fruit being so arranged that every individual pear could be examined without touching one."

The French have already made an experiment in planting railway banks with fruit-trees. Mr. Robinson went to see eight leagues so planted along the line from Gretz to Colommiers, on the Chemin de Fer de l'Est. The fence of galvanized wire is in operation here, and pear-trees are trained on it so that their branches cross each other as in trellis-work. In some parts the fence is of wood, the planters reckoning that before it decays the trees will be so firmly intertwined as to support themselves. But only a single line on each side of the railway was planted, leaving a large amount of waste space still, which the author would have occupied by dwarf trees. He quotes M. Ballet: "It is quite possible and very advantageous to establish neat hedges of pear-trees more or less regularly trained. By planting them rather close together a quick result is obtained. At first it would be desirable to train the trees, as shown in the cut (exactly like trellis-work), so as to secure a dwarf-spreading tendency, but

* "Gleanings from French Gardens: comprising an Account of such Features of French Horticulture as are most worthy of Adoption in British Gardens." By W. Robinson, F.L.S. London: Frederick Warne & Co. 1868.

after a time they might be allowed to grow like any common hedge, and even clipped with a shears. They should be planted at about 4 ft. apart." This eminent French authority recommends this arrangement for railway banks as it will resist the strongest winds. Mr. Robinson suggests that we should grow figs on the sunny banks in our southern counties; and that, instead of planting one continuous fence of fruit-trees without reference to the soil or situation, as the French have done in their experiments, we should consider both and take only the more desirable spots along the lines at first.

Not only are our sunny railway banks wasted, except by enterprising railway porters at rural stations, in tiny plots, but we throw away our available spaces as though our "tight little island" was the vast continent of America. Not only miles of garden walls are left bare, the low exterior walls of hot-houses left bare, and great blank spaces left bare, where there are fruit-trees grown at distant intervals, whereas the most skilful cultivators in "La belle France" arrange their branches alternately, and their trees so closely, that the branches of one run in between those of another, making the wall as green as a meadow; but we throw away other opportunities. It seems any one who has a cave or cellar, old box, tub, or tea-chest, can cultivate mushrooms if he will. Any one with the smallest garden can have salad all through the winter, by the use of the same means French growers take, which is simply to cover their salads with bell-shaped glasses, beneath which the lettuce or other salad flourishes in frost or otherwise, as in a Wardian case. Any one, as we have seen, may greatly increase the productiveness of his fruit-garden if he choose to take the same means French fruit-growers take, and the same trouble. In fine, we might very materially improve our condition in this respect if we thought well to set about doing so. There is no reason why peaches should not be sold about London streets for the same price as oranges, or for a halfpenny a-piece, as in Paris. The peaches sold in Paris are grown on walls in the neighbourhood; only every foot of the wall is utilised, and care is taken, by the protection described above, that the crop is not blighted every other season, or more frequently still, by frost.

The sum and substance of Mr. Robinson's book is a reiteration of our lost opportunities, our wilful waste of wall-spaces, our bungling, expensive, extravagant ways of gardening, all tending to make fruit a luxury for the wealthy only,—for those who can drive to Covent-garden and select it at a cost as high as though it had been "guarded by dragons to brighten the gardens of kings." When he has made our errors patent, he shows us how fruit-culture is managed in France by those who have attained the most success in it; and shows also how profitable it is to them, and how bountiful it is for the public. But he also draws attention to the superior appearance of the French public gardens and the details that have conduced to it. And here, again, the French have naturalised a production of Great Britain, and shown that they can appreciate it, if we cannot. This is the common Irish ivy. The borders in the private garden of the Emperor at the Tuileries, as well as the more public part of the grounds, are all edged with beautiful dark green glossy bands of the Irish ivy. It may be seen again in the gardens of the Louvre, and in the Luxembourg Gardens, where it is trained to fall in wreaths from tree to tree in the avenue bordering the long basin of the fountain built by Catherine de Medicis. The municipality of Paris begrudge no expense in the purchase of trees and plants, nor in floral decoration. Mr. Robinson says one ball at the Hôtel de Ville, in the festivities of the past year, cost considerably over 30,000*l*. Ten thousand plants are sometimes taken there for one evening, in vans furnished with stoves and flat hot-water pipes. "As soon as a new road or boulevard is made in Paris, in go the trees, and every one of the millions is as carefully trained and protected as a pet tree in an English nobleman's park." Each tree is protected with a cast-iron grating, to keep the ground from becoming hard. The kinds chosen are the plane, chestnut, large-leaved elm, the Robinia, Ailanthus, and *Paulownia imperialis*. Of course the author seizes the opportunity to press that the Thames Embankment should be endowed with these most agreeable ornaments. The nurseries in which the plants, trees, and shrubs are reared for the principal gardens and streets, their boulevards, their river-banks, and radiating avenues, are immense establishments, with every possible appliance. There is one for tender plants at Passy, another for trees and shrubs in the Bois de Boulogne, and a third for herbaceous plants in the Bois de Vincennes. The gardens of the State grow their own supplies. About 3,000,000 of plants are annually furnished by the first-mentioned propagating establishment for the embellishment of Paris. Everything is on a large scale. Sixty men can work at the bench in the potting-shed. Eighteen iron and glass-house buildings have just been completed, and sixty more are ordered. Then there are numbers of houses 80 ft. and 100 ft. long, filled with one variety of plant, 30,000 being the "opening quantity" for any novelty. 50,000 cuttings of one kind of fuchsia are inserted at a time. And besides the wholesale numbers of plants grown above ground there are thousands of others grown in cases under the gardens. Wherever stone is taken out of the ground for building purposes, a rough prop is left here and there sufficiently strong to support the superincumbent soil, and the quarry thus becomes a large cavern, which affords protection for the storing of choice plants. The Parisian gardener's varieties of hardy outdoor plants is much larger than ours. We do but little with palms, for instance, though there are kinds that are quite hardy enough for our climate: nothing with bamboos and bamboo-like plants, though many spots in the south of England and Ireland could grow them well: very little with the Yucca, or Adam's Needle: very little with several fern-like plants that are hardy and yet ornamental: in fine, it is clear that the list of hardy herbaceous, as well as annual plants, suitable for our public gardens, may be materially extended. While our enterprising and tasteful neighbours have the keenest appreciation of the beauties of numerous plants unacknowledged by us, they have but one idea about the floral decoration of cemeteries. That one idea is the wreath of everlastings. Faded, worn, wan, often wet, and rotten, these memorials, hanging, or lying, or fixed, on every tomb, have a most miserable and depressing effect. We respectfully suggest to M. Haussmann that he should take these places in hand, and not leave Death to be associated with such ghastly, dreary, harrowing associations. Mr. Robinson's eyes are not so dazzled by the remarkable productiveness of French gardens, nor by the glories of the public pleasure-grounds, nor by the taste displayed in private establishments, but that he can see the wretched aspect of the cemeteries. Indeed, his work is written in a fair spirit; and his strong desire to bring the superior fruits of the earth within the means of the million, combined with the pains he has taken to show how this may be done, entitles it to our hearty recommendation.

A LIMIT TO THE ARCHITECTURAL DEVELOPMENT OF CAPITALS.

THERE is a question which not unfrequently intrudes itself on the reflection of the architect, and which, repeatedly cast aside for the consideration of more practical demands on his attention, is apt often to recur, despite of its vague and shadowy nature. It is a question of which the solution is at present impossible, in default of sufficient data on which to base the inquiry. And yet it is one that is not without influence on the whole course of structural progress and of architectural development, for it involves the elements of durability and of adaptability, two of the chief considerations in design. The question is that of the natural or possible limit to the growth of our great cities. For how long can they continue to double their area within forty years? By what agencies can such a rate of progress be arrested? And what would be the state of stagnation or of decay that would ensue on the arrest of growth?

The question is forced on our consideration at the present moment by echoes of discontent and disquiet from the banks of the Seine. Over the mathematically-drawn streets and wide and stately boulevards that own M. Haussmann as their creator there flits a shadow that seems to tell of an approaching storm. A shadow of the same tint, and direction, and origin, is to be traced in almost every part of the map of Europe. Indeed, the gloom is very rapidly closing in; the bright points are hourly diminishing in number, in size, and in illumination; and the gay streets of the capital of modern civilisation seem already to be thrilled by that often remarked shudder that is the usual precursor of a gust of tempest.

The exact form of this menacing shadow, and the relation which it bears to the question of the present size and the future extension of the French capital, and which thus throws incidental light on the probable history of our own, is this:—How soon will it be too expensive to live in Paris? How soon will the increasing pressure of rent and municipal impositions force the poor man, or the man of moderate income, outside of the *enceinte*, and beyond the limits of the ever-exacting *octroi*?

It appears that the *Crédit Foncier* (an institution which differs from the unfortunate *Crédit Mobilier* and other enterprises formed for the purpose of supplying an artificial maternity to weakly speculations, inasmuch as it is supposed to attach the roots of its prosperity to the very soil of France) has entered into treaty with the city of Paris to supply funds for the building operations of the next decade. The amount thus to be furnished is differently stated by different authorities, all, it would seem to a foreigner, equally worthy of respect. The Minister who is regarded as the *porte-voix* of the personal Government spoke of 15,500,000*l*. (of course we reckon in sterling).

A member of the Municipal Administration, in a report at the close of 1867, arrived at 18,000,000*l*. A later authority, a councillor of State and Government commissioner, rather exceeded 18,500,000*l*. But, apart from estimate, and at the commencement of the decennial period over which it was proposed to distribute that expenditure, it seems that the *Crédit Foncier* has already discounted, or advanced money, to the amount of nearly 16,000,000*l*. sterling on the bills, *titres*, or *bons de délégation* drawn on this account on the municipal treasury. In addition to this, upwards of 2,000,000*l*. sterling have been advanced on similar security by the *Société Générale*, the *Crédit Lyonnais*, and the public.

To repay the advances of the *Crédit Foncier*, which, according to the principles of that institution, were regarded as a loan—that is to say, as a sum lent, and to be repaid in its integrity at a fixed date (thus differing from that national, never-to-be-repaid subscription, which is also sardonically termed a loan,) a charge of 2,000,000*l*. sterling *per annum* now weighs on the city of Paris. This, of course, is only an item in the account which will some day have to be summed up of the expenditure of the present enterprising Prefect of the Seine. Besides the *bons de délégation*, we find ranking against the ratepayers of the French capital, bonds of the famous year 1852 for 2,000,000*l*. sterling; from 1855 to 1860, for 8,750,000*l*. sterling; for 1865, for 12,000,000*l*. sterling; and the bonds of the "Fund of Public Works, Paris," for 4,800,000*l*. These sums form part of the 80,000,000*l*. sterling which have been raised and, as it is called, borrowed, by the towns, departments, and communes of France, during the sixteen years' life of the Second Empire. It is, therefore, not surprising to find that the annual charge of the *délégation* bonds presses somewhat uneasily on the good city, and that there is a proposition now under consideration to extend the time for the repayment of this considerable sum over a period of sixty years, instead of the ten years stipulated for in the existing and, as it should seem, somewhat irregular, treaties. The immediate inducement for this alteration in the character of the responsibility is not slight, being no less than the saving of an annual sum of 29,000,000 francs, which has to be defrayed out of the heavy *octroi* duties of Paris. But the shape of the change proposed has been defined, in a line, thus:—That the population of Paris, instead of paying 20,000,000*l*. sterling within ten years, shall pay nearly 52,000,000*l*. sterling in extinction of the same debt within sixty years. This may be called paying for a long day with a vengeance.

It may be as well to point out that under the French laws there does not exist that happy immunity for the escape from pecuniary inconvenience that prevails under our own more liberal institutions. We have seen within the last week or two the account of the manner in which the directors of a certain famous undertaking borrowed 533,000*l*. from the public in direct defiance of the law, and in the absence of any property, of any description whatever, on which the so-called loan could be legally based. Had this taken place in Paris, instead of London, the parties to the transaction would before this time have been condemned to the repayment,

from their own private resources, of the entire principal and interest of which the public had been thus irregularly eased, and would probably have been sentenced, into the bargain, to some such short term of imprisoment as the French judges are accustomed to add, by way of salt, to sentences of pecuniary mulct.

The very *idée mère* or nursing mother of all credit and finance companies, the child and sister of the lower Empire, the *Crédit Mobilier* itself, is even now affording an example of this wholesome vigour of the French laws. In the flush and glow of a prosperity too rapid, too vast, and too dazzling to be thought capable of reverse, the directors of this great financial association, with some slight irregularity of procedure, doubled their capital.

While Fortune smiled, and the run of luck held good, the fortunate possessors of the new (and irregular) shares were only too thankful to lay hold of them. When the aspect of things changed, and the fairy gold returned to its original form of withered, or even of poisonous, leaves, they thought it well to make inquiries, to take that legal counsel which would have been spurned in the palmy times of premium. The consolation and advice given by the men of law, if we may be allowed to condense them into four words of vernacular English, were simply, "Go at the directors." At the directors accordingly the discontented shareholders went, and the result has been the condemnation of these once famous capitalists to refund, out of their own resources, the money paid for these new and irregular shares. The judgment actually given by the tribunal at Amiens only covers the sum of some 2,000*l.* for which the action which it decided was brought, but the decision applies in principle to the whole sixty millions of francs of the new issue. The verdict will not be allowed to take effect without appeal, but the only form in which we have as yet seen any attempt to set aside the decision has been somewhat in the form of an appeal *ad misericordiam*; those directors who acted rather as sleeping partners in the concern representing that they should not be visited with the same rigorous measure of retribution as those who were the guiding spirits and active managers of the whole enterprise, such as the Messrs. Pereire and M. le Duc de Galliera. To this it is rejoined that the public know nothing of the distinction between acting and ornamental directors, that the appearance of such a name as that of M. Chevalier was a point that commanded public confidence in the management, and that there can be no excuse from liability merely on the ground of misfortune.

The law thus laid down, and as yet uncontradicted, by the Tribunal of Commerce at Amiens, stringent as it is in its operation, is not more so than our own. To say that the Bench of this country is as fearless and upright in the discharge of the judicial functions as is that of France would be a very mild way of stating an uncontradicted truth. It shows, therefore, a remarkable difference in the tone and the temper of French and of English shareholders that the formidable weapons provided by our own legislature against defaulting or fraudulent directors should have been allowed hitherto to rust in desuetude. By the Consolidated Statute Law of Larceny and other similar offences, any director, manager, or public officer of any body corporate or public company guilty of making, circulating, or publishing any written statement or account which he shall know to be false in any material particular, with intent to deceive or defraud any member, shareholder, or creditor, or to induce any person to become a shareholder in the company in question, or to advance money to the same, is made subject to the penalties of misdemeanour, and to penal servitude for from three to seven years, or imprisonment, with or without hard labour and solitary confinement, for two years. If, therefore, it should continue to be the case that the directors of the *Crédit Mobilier* are the only irregularly-acting trustees who are called to give a legal account of their stewardship, there are many men in this country who will have great reason to felicitate themselves that their recommendation to the debtor of two hundred talents to take his bill and sit down quickly and write fourscore has been rather commended for its acumen, than rightly rewarded for its dishonesty, by the great master, the Public.

It is pretty clear from this example of the operation of French law, that the bonds, or *bons*, or *titres*, or obligations under whatever name, that the last sixteen years have been tied round the neck of the unfortunate residents, who can obtain no article of household consumption that has not to pay the charges of the *octroi* of the city of Paris, have been tightly tied, and that nothing but a revolution, of a much more sweeping and convulsive nature than the mere fall of a dynasty, or exchange of republican for monarchical or other form of government, can apply the sponge to such liabilities. If the present burden be so great that a delay of fifty years in the repayment of a portion of the loan absorbed by the operations of M. Hausmann must be secured at an ultimate cost of thirty-two millions sterling,—for such is the result of the statements on the subject which have been published in this country,—what must be the intensity of the pressure! The great advantages of residing in a capital, viewed as a centre of business, are capable of pecuniary evaluation. Against these are often to be set others which money cannot readily purchase, especially the greater health and vigour attainable by sleeping in pure country air. The railways, while hitherto they have tended to augment the population of our great centres of industry by the enormous stimulus which they have afforded to business of all kinds, may yet evince a compensating power. As residence becomes unduly and intolerably expensive, travelling will come in aid, and country residence, with railway transit to and from a mere city office, will seriously interfere with the increase or even the maintenance of the number of city residents. To some extent this influence may even be made the subject of calculation and of prediction. The area available for residence increases as the squares of distance from the central point, the rates of fare are fixed and readily ascertainable, and the probability is that the ample returns which have been found to attend extremely low fares, coupled with proper accommodation for travellers, will tend to a general increase of cheapness in travelling on all lines that carry a heavy frieght of men going daily to and from their business avocations in our cities. On the other hand, the pressure per head of loans and treaties, such as those to which we have been referring, and of large and increasing expenditure, such as that of our own Board of Works, is capable of pretty accurate estimate. So long as the additional cost of the railway journey approaches the difference in rent, or in tangible and easily distinguished imposts, in the cost of the city over the country residence, there will probably be a sufficient inducement in the feeling which men have of liking to be on the spot where they conduct their business at their usual place of abode. But so soon as the balance turns in the other direction, and the domestic economist finds that he is an actual gainer in pocket by sleeping in country air, the natural advantages of the latter mode of life will tell as rapidly as they become familiar. Thus it is far from improbable that we may even now be at no very great distance from a natural limit to the increase of Paris, if not of London. Centralisation may still go on, until it becomes so impracticable, from the sheer impossibility of discharging all the business that seeks the capital within any tolerable time, as to enforce the distribution of different branches or grades of work to different provincial centres, a mode of action of which our county courts and revising barristers' courts afford examples. But, if our views are correct, the centralisation of dense, unbroken lines of street and masses of building is likely, sooner or later, to meet with a pecuniary check. The first substitute would be the dotting of a large area of country thickly over with houses, yet not so thickly as to form streets or towns. Something of this sort is now to be seen in the neighbourhood of Sydenham, where a large district is being covered by villa or cottage residences, each within its own inclosure of garden or close.

Building in this manner resembles a return to the arrangement of the great cities of antiquity, to the Babylon or Nineveh that could afford to shut its gates and await within its lofty and unassailable walls the raising of the siege from the sheer distress of the assailant, and could do so because within that formidable barrier there was cultivated land adequate to supply the food of the beleaguered inhabitants. In English walled cities, such as York and Chester, the ecclesiastical intramural precincts still present the same feature. A city was not, in earlier times, a mere mass of houses. It is only by slow degrees that the cities of our time have assumed that most unnatural and unhealthy development. So long as the financial reason operates in that direction, a reason the force of which may be gathered from the fact that, while population in cities has been shown to double in forty years, the money value of land in cities has been found to double in seven years, or even with greater rapidity, the increase of block cities may be counted on. So soon as the rapidly increasing weight of municipal imposts, under whatever name they may be known, becomes so heavy that the safety-valve afforded by railway travelling comes palpably into play, the increase in the property value will receive a decided check, and the increase in residential population will probably be turned into a decrease. The example of Paris in this respect is thus of the utmost interest to all who hold, or who have to do with, house property in London. The great and pressing want of the metropolis is that unity of rule and administration of which Paris seems to have enough and to spare. But with that consolidation and simplification which a few years more or less cannot fail to introduce, consolidation of jurisdiction, of municipal management, of gas supply, of water supply, and of what may yet remain to be done as to sewage, the features of a gigantic metropolitan expenditure cannot fail to become more marked and appreciable. Palaces and halls, on which it may now seem as though the architect had free encouragement to lay out what he would, may then stand empty and untenanted. It is not croaking to say this, for a more general distribution of the increase of population and the pursuit of the arts of the builder over the whole country would be a greater good, as far as the health, the morals, or the happiness of the people at large are concerned, than the continued growth of our enormous capitals. It is chiefly, however, by financial reasons that this change is likely to be determined.

JOHN BURNET.

JOHN BURNET, the line engraver, whose skill in using the burin has not been surpassed, died on the 29th of April last, aged 84. He was married twice, but on neither occasion was he happy in his selection. His second wife, by whom he had no children, was a sad invalid. She died before him.

Our great engraver was the son of George Burnet, general surveyor of excise in Scotland, a man of probity and talent, and Anne Cruikshank, his wife, sister to the eminent anatomist, the friend and associate of John Hunter. The family came originally from Aberdeen. John Burnet was born in Edinburgh on the 20th March, 1784. His associates at the Trustees' Academy for Design were Sir David Wilkie and Sir William Allan.

Burnet was the author of the following works:—

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THE PROGRESS of a PAINTER, dedicated to hi then young friend, P. Cunningham.

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ILLUSTRATIONS of the WORKS of J. M. W TURNER, R.A.

One of his best works is his noble engraving from Wilkie's "Chelsea Pensioners hearing the *Gazette* read of the Victory won by Wellington at Waterloo." Some of his clever sketches in oil from the heads of Greenwich pensioners,—old Trafalgar men,—narrowly escaped the recent fire at the Opera House. The best-preserved are in the collection of Colonel Francis Cunningham, who fought under Sir Robert Sale at the terrible and determined defence of Jelalabad.

The last life which Allan Cunningham wrote in his "Lives of British Painters, Sculptors, and Architects," was that of James Burnet. James was four years younger than John, and was only twenty-eight when he died.

Another principal engraving from the burin o John Burnet is "The Blind Fiddler." We saw in one of Mr. Burnet's portfolios Wilkie's drawing for the fiddler's hands; the fingers were inimitable in expression and in feeling.

The engraving after Wilkie which Burne thought was the best example of his skill with the graver was "The Letter of Introduction.

The expression in the action and inquisitiveness of the dog is inimitable.

The following are some remarks by John Burnet with reference to his brother James:—

Distances.

Extreme distance ought generally to be of the same tint as the sky with which it unites, and as it approaches the middle ground the stratas appear interspersed with touches of light and dark, such as the lights upon the tops of the houses, and their shadows. Be particular in marking the buildings with a firmer line than the trees; never admit colour into your distance when in the direction of the light; scumble a little with purple and grey at the bottom of your objects, losing their forms at the base. In a side light the objects are coloured where the light shines upon them, while the shadows are all of one tint; even red is grey in the shadow; but when the light is behind you every object is made out with its proper colour.

Water.

To paint water well the artist must truly have the liquid pencil of Cuyp. It ought, if possible, to be painted at once with a full pencil and a quantity of vehicle. The colours reflected in water appear more pleasing, from their possessing a rich pulpy substance, and also from their sweetly melting into each other. In painting water particular attention should be paid to the place and distance, as it alters much according to the situation. Objects near the foreground have their reflections strong when they touch the object, and often least when they come to the bottom of the picture; while, on the contrary, objects in the distance have their reflections stronger as they approach towards you. This arises from the waves conveying the reflection being larger, and less under the influence of perspective than where they touch the distant object.

Keep your reflections as flat as possible, as nothing gives greater firmness to the object, handling it only on the edges; keep lights flat, and your shadows smooth, with the space between them touchy, so as to unite them both. These observations will be sufficient to show you his strict observance of the effects in nature, and his reasoning upon them. When viewing collections of pictures it was also his practice to note down any remarks made upon them at the time. For example, he says, under a note dated May, 1814, on viewing the pictures of Richard Wilson at the British Institution,—"I observed some pictures more pleasing than others. Those which seemed most so were light pictures, with warm foregrounds falling into a cool sky and distance, the middle-ground mostly in shadow of a purple grey, with yellow and green touches through it. A piece of blue drapery in the foreground gives great value. Of all things, he seems careful to keep a proper balance of hot and cold colour, and of light and shade, with very little positive colour, and little of black and white, but always some of each."

I find many of the remarks are too disjointed to be worked up into anything like a regular series of notes, they being for the most part observations for the guidance of his own practice in painting. However, what I have given here may be sufficient to give an idea of his mode of study, as it is not necessary to give a complete treatise on the art of painting.

I forget whether I mentioned that he was buried in Lewisham churchyard. He was anxious to be interred in the village church of Lee, which forms the background of many of his studies; but, not being a parishioner, it was not compatible with their rules; and, as he died on Blackheath, where he was removed for change of air, we buried him in the adjoining parish. J. BURNET.

January 15th, 1833.

Here is an agreement with Burnet for the copyright of two pictures by Sir Edwin Landseer:—

"In consideration of the sum of one hundred and fifty guineas, paid to me according to agreement, I give and make over the copyrights of two pictures painted by me, namely, 'The Lassie and Sheep,' and 'The Widow Duck,' together with all profit and emolument arising from the same, to Mr. John Burnet, his heirs and assigns for ever. E. LANDSEER.

March 14th, 1841.

Witness, JACOB BELL."

There is a capital portrait of Burnet by the late Stephen Poyntz Dunning, keeper of the Bourgeois Collection of Pictures at Dulwich. It is admirably engraved by Charles Fox. Mr. Burnet's great friends were the Robsons of Leytonstone, in Essex. He died at Stoke Newington.

A HALT AT DIJON.

WITH Italy in memory, and Italy again within the scope of designs at starting, it is not easy even for the idle to linger along the route that leads to the open transit over Mont Cenis. A sense of shame at passing by whole provinces of antique interest without attention is, however, not to be suppressed, and perhaps has quite as much to do as disposition to, of course it is believed, well-earned self-indulgence, in declaring a halt at Dijon, where, with but cavalier consideration for a contemporary artist, we are told in our red guide, "in spite of modern improvements, there remains a good deal within the town worthy of notice." So at the ancient capital of the Dukes of Burgundy we pause, and open wide eyes at daybreak for reception of impressions from the seat of potentates, of whom, somehow, the relaxing historical memory of busy life finds it a little difficult to think definitely. In the style and colour of their associations they will persist in blending oddly with the characteristics of their beverage that survives them. Charles the Bold and Philippe, and Jean-sans-Peur, all are tinged in the thoughts of a well-girt traveller, without even a Maunder in his portfolio, with some hues of pretentious self-announcement a little in excess of performance that are reflected from the wine, that has merit enough of its own no doubt, but still can scarcely shake off the imputation that it would be port if it could.

There is a fine Burgundian tone, much in harmony with these quite uncritical associations, about the two magnificent tombs—dating quite at the beginning of the fifteenth century—of the two last-named worthies. They are set up in the museum, in no doubt more than their original freshness and completeness; but, glaring as they are with hyper-restoration, there is so much that is fine about them, and so much that is interesting, and so utterly impossible has it now become to determine the claims of fifteenth as against nineteenth century, that it is best to admire the admirable, give up the reins of our imagination into the hands of the restorer or author, be pleased we know not by which, and are only concerned to analyse the wherefore.

Each duke lies recumbent, with consort beside him; all are represented in the manner that was satisfactory in the Middle Ages and has in truth a certain justification in sentiment, neither distinctly dead nor living, sleeping or awake; all retain their best good looks, as they appear in their finest apparel and most dignified array; still the interest they excite speedily declines before the attractive enrichments of the details that surround them, and the liveliness of the subsidiary figures, that, disembarrassed of dignity, seem not even struggling against the pre-occupations of common existence and every-day nature.

The deeply-recessed arcades along the sides of the altar tombs are occupied by a large number of very elaborate statuettes of friars, sculptured in the round out of alabaster, each in his niche, the friars, no doubt, of the Chartreuse of Dijon, founded by Philippe, and endowed by him, providently acting in accordance with the maxim of Hamlet, that it behoved a potentate who would not be forgotten after his death to build chapels during his lifetime. These little figures are of the greatest variety and difference of expression and physiognomy, and, if the heads are original, may more easily have been portraits than inventions. As mourners they can scarcely be said to declare themselves, and are really for the most part as widely remote from the solemn as from the grotesque in that interval so much more roomy that divides the sublime from the ridiculous. The variety of pose and gesture is only equalled by the diversity communicated by invention of folds and monuments, to the simple cowl and single robe of the friar. They are ascribed to one Claus Slater, a Dutchman. As accessories to an almost royal tomb they are out of harmony, at least according to conventional proprieties of loyalty within a half-century of the country's bereavement; otherwise—must we say?—as sideboard or chimneypiece ornaments, and as welcome subjects individually for the photographer, they are works that would not easily in their kind be matched.

For proper architectural interest Dijon is well known as preserving various specimens of a provincialism in Gothic that has been compared to the relaxations of the style, as it diverged or declined into Tudorism. Such specimens and their features are unengaging enough, and undecided enough, and, indeed, chiefly on that account unengaging. They seem akin rather to the clumsiness of expression and lapses in syntax that declare the hopeless ignorance of a base patois, rather than the vigorous irregularities of strong thought which disdains restraint and will one day dignify itself as an accepted language of art. We look in here and there at interiors that invite but little stay in other repects, and certainly none by an incongruous admixture of depressed round arches with pointed, and alternation of depressed pointed arches with round. The examples may be passed over here, relegated to the collections that the history of every art is bound to undertake, of styles abortive, and styles artificially or accidentally suspended in development, or distorted after it.

The one chief architectural interest at Dijon, so far as an idler on another errand can venture to claim acceptance for his recommendation, is the earlier and purer church of Notre Dame. This is now undergoing reparation to an extent that is very little short indeed of re-construction, at least of the interior, and the exterior must be taken in hand, and doubtless will be so thereafter. The church deserves the most reverential conservation, and that little less could be undertaken in this way than is now in progress seems pretty clear from the abundant shorings that are sustaining, no hour too soon, the tower and various walls that as yet have been scarcely interfered with. The nave is what we have called before now Columnar—that is to say, columns, in this case round, are in the place of piers simple or compound; the capitals are not good, true, or beautiful particularly; and the stiff, horned foliage rises to the angles of an octagonal abacus. This octagon is not regular; it shelves forward peculiarly in front, and on this projection, as on a corbel, are accommodated the bases of three shafts, that spread above into the diagonal and transverse ribs of the quadripartite vaulting. The choir, or rather apse, which is dated 1229, is very shallow, and here the vaulting is supported by shafts that rise, not from columns, but from the ground, and are superposed. The triforium passage has a lightly-shafted opening to the church, but is lighted by a circular window from without immediately behind it.

The western front has been compared to Ely; above the deep triple portals rises the flat wall, that is relieved above, or differentiated at least, by two ranges of very tall pillaretted arcades. Of these the lower has at least the excuse of an opening through the pierced wall, as if for entrance from the building into the gallery, shallow as it may be. The upper pillarets, no less, stand free of the wall, not returning round the angle, as neither do those below; and here, to all appearance, they are not sufficiently advanced to permit of standing-room behind, even if the space allowed were accessible, which to all appearance it is not. The most plausible defender of the fairness of constructed decoration, who may so often fairly have the best of the argument, will be at fault here. In such a glaring case of misapplied casual elaboration as a means of escaping from the misery of an unornamented blank wall, the lamp of sacrifice is lighted in vain; it is little more than a guttering candle burning daylight to disgrace and wastefulness, and we shall damage better causes by holding by the palpable abuse. The true glory of the façade is in the originally designed and beautiful porch below. A very spacious central arch and two considerable side arches admit (when they shall no longer be blocked up by shoring timbers) to a porch of two bays in depth, two compound shafts in front of door-jambs of the main entrance supporting the elegant vaulting. The doors are recessed in several orders, with light shafts of coloured marble and tabernacled capitals of peculiarly early character. The capitals retain much ancient colour, and indications of very decided coloured patterns remain within and without, on walls, shafts, architrave of door and its soffit, but, on the whole, not very successful in intention. It may, perhaps, be a fact explained by or illustrating much in the story of the manifold religious troubles of Burgundy that, while the sculptures of the tympanum and archivolts have been carefully and thoroughly defaced, the Virgin and Child upon the central door-post, and manifestly coeval with the rest, are absolutely uninjured.

It is impossible to witness reparations so capital as here proceeding without some qualms as to the chances of lapse in conscientiousness of adherence to the ancient model. On the consciences of our neighbours let the responsibility lie. For ourselves, well pleased with the prospect that a noble church will be saved from ruin, and seeing enough to assure us that the effect of the restored work will be consistent and expressive, we really at the present time cannot charge ourselves with the burden of what may be needless apprehensions. We willingly have faith that all the details that were of merely historical importance, and that may now disappear, have been duly recorded for the advantage of history, while art may be heard upon its own merits, and replace what was bad (and such things were even in the glorious thirteenth century) with what is truly and consistently in harmony with whatever the structure contains of the better and the best. Ugliness must, it may be feared, sometimes be consecrated by historical associations—may we be visited lightly in this way at home in England!—and when the consecration can scarcely be made out let us have the grace to cut boldly, cut deeply, and give both to Nature and Art a fair chance of rejuvenescence and their right fair play. At Dijon at the present moment, as we have said, our frame of

mind will really not admit even of liability to lapse into captiousness: we see how much that is done is being admirably executed, and promises a truly fine effect, and cannot bring ourselves to inquire, or to feel ourselves entitled to inquire, any more how much mischief goes with it than to trouble ourselves about how the whole is to be paid for.

THE FACULTY OF INDUSTRY.

On more than one occasion we have congratulated the nation on the acquisition of an extraordinary benefaction, and now the particulars of the Whitworth Scholarships for Mechanical Science are fully made known by a memorandum signed by the generous donor himself (an epitome of which we gave in a recent impression) it will not be inopportune to add a few words as to the use to be made of this noble Foundation.

We may premise that, as was to be expected, the memorandum is directed to the arrangements for the proper use of the funds, and in a few pithy sentences shows just such wide sympathies and broad views as one would suppose ruling in the breast of the man who could devote such a considerable portion of his fortune to such an object. For instance, not only are all universities and colleges in England, Scotland, and Ireland mentioned by name, and all the more important public schools, as well as the Society of Arts, and the Department of Science and Art at South Kensington; but especial provision is made for the artisan class in the various towns and cities where mechanical industry is chiefly required; curiously enough, omitting Manchester itself, though noting Birmingham, Bristol, Swansea and Cardiff, Halifax or Huddersfield, Leeds, Northampton, and Sheffield.

In fact, as if especially to mark the unsectarian nature of the gift, Manchester, "the seat of my workshops," is provided for by having eight *Exhibitions* devoted to the use of Owen College, and two exhibitions devoted to its grammar-school, with no special appropriation of any of the Scholarships, to be given in 1869, or subsequently.

The broad basis of the whole scheme is only limited by the phrase "her Majesty's subjects," and so it is open to every one in any part of her Majesty's dominions to compete for these rewards, whether he reside in the farthest part of India or the most distant colony.*

How well this contrasts with the too often close and narrow schemes of former times, when some limitatation to the founder's kin, or to residents in his native town, some reservation as to a particular name, a preference for some form of education, or even directions as to some particular dress or manner of living, have gone far to neutralise the value of a great and substantial donation, and even at last called for the positive interference of the Legislature to prevent the waste and corruption engendered by such mistaken limitations! Although we are admirers of old customs and forms which may not be altogether consistent with present usages, we never see the yellow-stockinged and capless youths of Christ's Hospital without regret that the spirit rather than the letter of the founder's will should be adhered to, and wishing that the boys might pursue their studies or enjoy their pastimes without being obliged to wear the absurd costume prescribed for them at a time when it was only the customary dress. We cannot but believe that the large heart which originated such a noble charity would be pained at the narrow rendering of his meaning which, with mistaken respect for his memory, modern generations of governors have given to his words.

Mr. Whitworth has had the foresight to prevent his name being ultimately made liable to ridicule by unthinking men, in not clogging his gift with absurd conditions; and in placing it in the hands of the Committee of Council on Education he has obtained the highest guarantee that his scheme will be administered with due regard to the interests of the nation, as well as to his own individual wishes, and has proved that his object is the disinterested good of others rather than the vanity of making a name, or even the noble desire of "keeping his memory green" in future generations.

Another great feature in Mr. Whitworth's arrangements is its immediate effect. This is no deferred gift, to be made use of when not wanted for other purposes; but it is now, at a time when there is great demand for such mechanical teaching, that it is offered. The suggestion of the Exhibitions to be given this year is, in fact, making use of existing organisations, developing present resources, calling forth real, though latent powers, in order to arrange and encourage them for another effort, at a period not too remote to seem hopeless, nor too near to prevent any likely candidate from competing.

In fact, the announcement of the ten scholarships for May, 1869, of 100*l.* each, tenable for two or three years, would probably be practically useless in the majority of cases, were not provision made for these sixty Exhibitions this year (of 25*l.* each), in order to form a body of disciplined and worthy competitors.*

Every one, except those specially endowed with a love of study above the ordinary standard, requires an object to aim at and a stimulus to exertion, as well as some information as to his progress, in order to keep up the spirit necessary for sustained study, and often something more substantial to encourage, at least, if not to assist him on the road to the prize of ultimate success which he has in view.

As one of the proposals embodied in the memorandum referred to (and it is not the least advantage of this scheme that, like all that is really good, it seeks to engage others in the same good work), it is modestly submitted, as a suggestion, that "honours in the nature of degrees should be conferred by some competent authority on successful students each year, thus creating a *Faculty of Industry* analogous to the existing faculties of divinity, law, and medicine." We are inclined to be of Mr. Whitworth's opinion, "that such honours would be a great incentive to exertion, and would tend greatly to promote the object in view;" and it is not without some longing for a similar Faculty of Fine Art, actually suggested at University College not very long ago, that we read further of the hope that Government will provide "the necessary funds for endowing a sufficient number of professors of mechanics throughout the United Kingdom."

How much it is now to be regretted that the architectural voluntary examinations and the scheme of education supposed to have been fairly started a short time ago have both fallen through! For such organisations were of the very character likely to give vitality and reality to such a suggestion, and make use of the impetus of any forward movement which ought to be experienced by all "the Arts" alike, though in various degrees. An important arrangement for those who have obtained the scholarships is that as much latitude as possible is to be granted in the subsequent plan of study proposed by them. If the student wish to complete his general education instead of continuing his scientific study he may be permitted to do so. He may go to the universities or colleges affording scientific or technical instruction, or he may travel abroad. "The successful artisan should be encouraged to study theory, and the successful competitor in theory aided in getting admission to machine shops and other practical establishments."

A more admirable paragraph than the foregoing could hardly be penned; but this intention is further explained in the following additional memorandum:—

"My object in devising the foregoing scheme has been, while requiring a practical acquaintance with a few simple tools as a *sine qud non*, to render the competition accessible on fairly equal terms to the student who combines some practice with his theory, and to the artisan who combines some theoretical knowledge with perfection of workmanship."

With regard to certain special exhibitions offered this year to artisans—already mentioned—it is pointed out that by connecting them with the Science and Art Department under the minute of the 21st of December, 1867, the value of each might be doubled. This in itself shows a careful consideration of the interests of the working classes, which it would be well for those to remember who are always quarrelling with capital, and who so falsely imagine that the interests of the one are antagonistic to those of the other class.

Looking, then, to the details of the scheme as sketched out by Mr. Whitworth's own hand, we are impelled, as artists ourselves, claiming a thorough alliance with the constructive and mechanical arts, to ask if it be not possible to introduce, say, even the smallest element of artistic excellence to the consideration of the founder. We strongly hold that as in former times artistic and mechanical excellence were not only closely allied in the execution of ordinary or extraordinary work, but often united in the same individual (thus often going hand-in-hand as brother and sister, the one contributing grace, delicacy, and truth to the strength and manliness of the other), so ought it to be now. We seem to see some signs of an attempted union, where perhaps least expected—say in certain improved artistic forms given to simple engineering works, following closely after some of the most uncouth productions of modern times. And, if it *ought* so to be, would it not be well to acknowledge the fact in some substantial manner, and in a way to be now decided—perhaps, say, by devoting three exhibitions this year, viz., the one given to King's College and the one to University College, with one of the three devoted to the Science and Art Department (to be followed by the offer of one of the ten scholarships next year), to the producer of such special additional proof of artistic excellence in any of the various branches of mechanical science chosen as may be decided upon?

Perhaps we are looking at this matter from too professional a point of view, from too limited an area, and may be liable to the charge of a selfish attempt to secure for Architecture a share of the prize. Be it so. To the generous founder it cannot be a source of regret to find his efforts appreciated, and his sanction and encouragement desired for the advancement of art allied with his special object—mechanical skill.

We are aware that we may be treading on delicate ground, and that the "arts cognate" to architecture may be considered by some as an intrusion and an impertinence; but in reality it is far otherwise, and Architecture, which is so dependent upon and so connected with mechanical science as it is, cannot afford, if she would, to stand aside while the latter is progressing, and then quietly bring up the rear. On the contrary, she ought to take the lead, and, from higher and more dignified position, point to objects capable of being reached and aims worthy of being attempted by the most mechanical genius. For as far as the devotion of man's efforts to the noblest aim of improving and elevating his fellow man exceeds in value the application of them to his physical destruction (or to the means by which this may be accomplished), so far does the artistic elevation of science, which includes also all its practical application to the amelioration of the condition of man's daily life, exceed the application of science in all its precision and exactitude to any of the ordinary branches of mechanical art.

At the same time, we are free to admit that the proportion of those whom it is desirable to encourage in this speciality is small, as is the number of those endowed with artistic powers small compared with those capable of exercising or of cultivating in others the exercise of pure mechanical science.

What we desire to see, then, is an authoritative recognition of the power of art to elevate, refine, even improve and instruct, the practical and scientific mind and guide the strong hand of the mechanic.

As the department charged with the execution of a portion of the plan is that of Science and Art at South Kensington; and, moreover, as the Society of Arts has a share in the matter, we think it is not too much to ask that they at least should make the attempt and consider the desirability of the course we recommend. Very properly, we think, neither the Institution of

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* *General Particulars as to Scholarships.*

"II. That the thirty scholarships of 100*l.* each should be open to all of her Majesty's subjects, whether of the United Kingdom, India, or the colonies, who do not exceed the age of twenty-six years, and be held either for two or three years, as experience may prove to be desirable; that ten scholarships should be competed for and awarded in May, 1869, at the annual national examinations in science, provided that a sufficient number of candidates prove themselves to be competent."

General Particulars as to Exhibitions.

"VII. As the scholarships scheme can only come into full operation by degrees, I propose from the fund ultimately available for the scheme at once to create sixty exhibitions or premiums, of the value of 25*l.* each, tenable until April, 1869, and to place them at the absolute disposal of the governing bodies of the following educational institutions and towns, in order that they may award them to youths under twenty-two years of age, who may thus be aided to qualify themselves, and must undertake to compete for the scholarships of 100*l.* in May, 1869."

* One of these Exhibitions of 25*l.* each has been placed at the disposal of the Principal of Liverpool College, and that gentleman has thrown it open to public competition, under conditions named in the advertisement which appeared in our last number.

Engineers nor the Royal Institute of British Architects, as not being educational establishments, has been referred to; so that, as far as we see, nothing professional in either case can stand in the way of the due appropriation as may be deemed fit of certain Exhibitions which may be unapplied.*

The disposition of a certain number is specially indicated in the memorandum; but it is provided that any not so applied may be given by the Science and Art Department to any other scholastic institution which makes satisfactory arrangements for affording instruction in (amongst other things) "free-hand and mechanical drawing."

Thus seems distinctly recognised the special power of representation which an artist or designer possesses and exercises, while there is no reason why such an artist should not be as good a hand at the use of mechanical tools, and as good at geometry and physics, as one who cannot perceive the beauty of line or appreciate the excellence of form, or the artistic appropriateness of one style of work to another. When all other circumstances and conditions are satisfied, let us hope that an opening will be made for the speciality of the artistic metal-workers, for instance, say at Hardman's (Birmingham), Skidmore's (Coventry), or Hart's and others (of London), who, as mechanics, are at least worthy to stand beside engine-makers and others, who do not profess to add taste to the various excellencies of finished mechanical art. Let these lead the way for many other similar classes of workmen who can combine the theories of art and science and the best workmanship in both.

SAINT PANCRAS NEW PUBLIC BATHS AND WASH-HOUSES.

THESE baths and wash-houses have been formally opened. They are situated in King-street, Camden-town. The superintendent's residence is over the entrance. There are two tepid swimming-baths, each 56 ft. by 22 ft. 6 in., with sixty dressing-boxes, fitted with dwarf doors and York stone platforms. The baths are lined with glazed tiles, and have glazed brick bottoms, the latter on a pattern made by the use of Staffordshire bricks in bands, &c. There are ornamental tile borders to the first-class baths representing a series of dolphins. A glazed dome skylight surmounts the swimming-baths, and there are three gas star-lights over each bath. Subways run all round under the platforms.

Of private bath rooms on the upper story there are—

	1st Class.		2nd Class.
Men's	26	.....	58
Women's	8	.....	10
	34		68

The baths are Finch's porcelain throughout, with Busby's patent valves.

The entrance in King's-mews leads to the public washhouses. Here are the boiler-house and engineer's residence. The public wash-house is 54 ft. by 27 ft. There are sixty-three washing compartments of galvanized iron, with cast-iron tubs for washing and boiling. Hot and cold water and steam are laid on to each. There is a hot-air drying-closet, with a separate galvanized-iron horse for each washer suspended on wheels and iron runners: these were made by Messrs. J. & F. May, of High Holborn. There are three wringing-machines, by Manlon & Alliott. The engineer's apartments are over the washhouse entrance, with tank over for 26,000 gallons of water.

The architects were Messrs. Messenger & Gundry; the general contractors Messrs. Manley & Rogers. The boilers, pipes, &c., were supplied by the St. Pancras Iron Company; and the iron work was constructed by Messrs. Head, Wrightson, & Co.

THE NEW LAW COURTS.

WE have reason to believe that the Government have appointed Mr. G. E. Street, A.R.A., to be the architect of the new Courts.

* This is supposing that certain offers of Exhibitions are declined or cannot be availed of this year. The number of exhibitions to be provided as stated is sixty, while there are sixty-six disposed of in various ways; therefore it must be expected that a considerable number are not likely to be made use of this year, or these additional appropriations would not have been made in the memorandum, nor any further remarks as to others still likely to be "unapplied."

BEARWOOD.

A VERY interesting event came off on Saturday last. At Bearwood, in Berkshire, on the charming site of the old house formerly there, a fine mansion is being erected, from the designs of Professor Kerr, for Mr. John Walter, late member for the county, and again, we are glad to see, announcing his intention to stand at the ensuing election. The building being finished externally, or nearly so, Mr. Walter on that day entertained at dinner the whole of the workmen who are engaged upon it, some 380 in number, as he had previously done on laying the corner-stone. Besides Mr. and Mrs. Walter, there were present Mr. John Delane, Mr. Kerr, Captain Walter, and several other friends; and the meeting passed off in a singularly agreeable and admirable manner; workmen, architect, and employer being apparently equally pleased with each other. Mr. Walter made some felicitous addresses, in the course of which he expressed with emphasis the hope that the home there being formed would never become the seat of merely selfish enjoyment, but would be and long remain a centre of kindly hospitality and social sympathy. The health of Mr. Kerr was drunk with great warmth, as was that of the manager of the works, Mr. Deacon.

In proposing the health of the architect, Mr. Walter said that it was from the perusal of Mr. Kerr's book, "The Gentleman's House," he had been led to seek that gentleman's assistance. Mr. John Walter, jun., called on to reply for "Posterity," did so in a capital speech.

The house is of considerable size and great commodiousness, and includes a central picture-gallery, round which the other apartments are disposed, the windows of the chamber-story opening above its roof. When we mention that the picture gallery is 70 ft. by 24 ft., the dining-room 40 ft. by 24 ft., and the drawing-rooms 96 ft. by 26 ft., the scale of the house will be understood. The style adopted is a free version of that of the sixteenth century, the materials being red brick, of peculiarly good colour, and Mansfield stone. A more admirable piece of brickwork we have seldom seen. The slating is Westmoreland, of excellent colour. A tower, some 30 ft. square at the base, serves as the staircase. Other towers of smaller size assist the skyline, and the gables contain sculptured shields and foliage. At the garden entrance, of which a view may be found in the present exhibition of the Royal Academy, two figures of considerable beauty, Night and Morning, modelled, but not yet put into stone, will form a portion of the doorway.

It was a worthy act on the part of the owner of a building which, adorned with the fine collection of pictures he is known to possess, is destined to become one of the notable Homes of England, to let the first exercise of hospitality within its walls be in favour of those who have laboured upon it. The spirit shown on all sides was excellent, and we heartily congratulate those who are concerned in the undertaking.

At Ascot, on the road to Bearwood, a gabled house that has been built for Mr. Delane, under the direction of the same architect, was pointed out to us. This, also, is of red brick with stone dressings, and looks very well, from the railway. The planning is somewhat peculiar, to meet a special requirement; and we shall take an opportunity to make it better known to our readers.

THE LATE MR. PRITCHETT, ARCHITECT.

ON the 23rd ult. departed this life Mr. Pritchett, of York, architect, probably one of the oldest members of the profession in the country, being in his 80th year, and having been in actual practice on his own account for the long term of 55 years.

Mr. Pritchett was born October 14th, 1788, at St. Peter's, near Pembroke, of which parish his father was the clergyman. He served his articles with Mr. Medland, of Southwark, and was afterwards two years in the office of Mr. Alexander, at that time architect to several public works. He was subsequently a short time in the "Barrack Office" under Government, and commenced practice for himself in London in 1812. After executing two or three commissions he removed to York in 1813 to join in partnership Mr. Watson, who was the successor of Carr, the original Yorkshire architect, and continued to practise in York up to within a few months of his death.

In those days architects were few and far between, and he and his partner had a wide range of practice in the northern counties, being out sometimes for weeks together visiting their works on horseback or driving. In the city of York his works were the deanery, some restorations at the minster, St. Peter's School, now the School of Art, the Savings Bank, new front to Lord Burlington's Assembly Rooms, Lady Henley's Hospital, Lendal and Salem Chapels, and many private works. In the county his works included Wakefield Asylum, one of the largest built at that time, Beverley Court-house and Gaol, numerous churches, chapels, schools, parsonages, and gentlemen's houses. He was architect and surveyor to the Earls Fitzwilliam during three generations, visiting their seat and estate at Wentworth on an average once a month for more than 50 years; and in addition to enlargements and improvements in the house, he erected many churches, parsonages, schools, and lodges on the estate. Among his pupils now in practice may be named Messrs. Daukes, of Whitehall-place; Blackett, of Furnival's-inn; Medland, of Gloucester; Middleton, of Cheltenham; Gilbert, of Nottingham; and his sons, of Walton-under-Edge and Darlington.

FROM SCOTLAND.

Leith.—The new Town-hall has been formally opened by the magistrates. The edifice is in Charlotte-street. The new offices have been constructed from plans prepared by Mr. Simpson, burgh assessor. On the basement floor are placed the detention-rooms, and rooms for the accommodation of the detectives and officers of the police force. The first floor is occupied by the collector's offices, burgh officers' room, and a room in which are preserved the burgh records. The provost's and town clerk's rooms are placed on the second floor, from which there is a passage leading to the old building. In the old building accommodation is provided for the registrar and sheriff-clerks. The entire cost of the new building is estimated at 1,600*l.*——The foundation-stone of the first of a block of houses about to be erected at Hermitage-place, adjoining the Links, by the Industrial Co-operative Building Society, has been laid by Provost Watt. Eight acres of ground have been acquired, upon which it is intended to erect a number of working men's houses. According to the plans, the houses will be of a uniform height of two stories, and so arranged internally as to conduce to the comfort and convenience of their occupants. Each house will have a plot of ground attached to it; and the working men, guarding against the error of their forefathers in building their domiciles so closely together, intend to make the roadway between the rows of houses fully 60 ft. in width. The occupant of each house, by the payment of an entrance-fee and of a small sum at stated intervals, will, in a brief period, become his own landlord.

Stirling.—Arrangements are nearly completed for the thorough restoration of the choir and chancel of the high church. It is intended to restore the whole fabric according to the style and character of the restorations effected in the cases of Glasgow Cathedral and Paisley Abbey. The improvements connected with the East Church are calculated to cost upwards of 2,000*l.* There have already been 1,670*l.* subscribed. Of this latter sum the town council have subscribed 200*l.*; and Mr. John King, of Levernholm, has given 500*l.*, 350*l.* of which are to be expended in the erection of a memorial window. It is anticipated that the Guildry Incorporation are also to erect a similar window to the memory of John Cowane, founder of Cowane's Hospital. The restoration of the transept is in the hands of a committee of some of the most influential inhabitants, and for which a sufficient sum of money has been raised, and the work is now being proceeded with. The whole work of restoration is expected to be completed in the course of the year.

Paisley.—The Fountain Gardens, a gift of Mr. Thomas Coats, of Ferguslie, to the townspeople, have been inaugurated. The grounds extend to six acres. In the centre of the park or garden is a fountain with circular basin 58 ft. in diameter. At the entrance to the grounds are two cottages, one for the superintendent and the other for ladies.

OF SOUTHEND; SANITARY AND ARCHITECTURAL.

"The laws of health should be taught to every child, from the ragged-school upwards, and followed; and if we had preventive physicians—physicians who would keep us from getting ill, as well as cure us when we are ill—we should be a healthier, better, and happier people. The spread of knowledge on the subject is of the greatest importance; to that we must look for the desired result." *

THE recent visit of Prince Arthur to Southend has somewhat increased the public interest in this part of Essex. In 1804 it was visited by Queen Caroline and the Princess Charlotte, and by several distinguished families.

Southend consists of an old town and a new town, and there can be but one opinion as to which is the healthiest, and most convenient for a temporary habitation. The old town formerly consisted of one long irregular street (and its additions are quite as irregular), facing the sea. The new town, called Cliff Town, stands westward; the houses are attached in rows, and are of three classes. The first-class face the sea, and consist of basement, ground, one and two pair stories. The other classes form diverging lines, so as to have a view of the sea. The houses are all similar, plain, and neat, with bow windows, surmounted by balconies.

The architectural student will not find much worthy of notice in Southend. The houses in Cliff Town, although neat and convenient, present the appearance of a barrack town more than anything else. The Congregational church is an exception, it is Early Decorated, and consists of a nave, south aisle, and a small octagonal broach spire on an octagonal tower, rising from a square base. Circular columns separate nave from aisle with foliated capitals. Roofs are high pitched and truncated. The church is in all respects similar to our parish churches, except a peculiarity at the east end; in this is an oblong space boxed in for the minister, and over this is a polygonal recess for the choir.

The hotels and houses in the old town are mere brick boxes, with holes cut for windows, so that at present we have but little architecture at Southend. The modern church in the old town, built in 1840, is proposed to be enlarged, with a tower, &c. A Wesleyan box-chapel exists already in the Old Town, and a piece of ground has been taken for a new Wesleyan chapel in Cliff Town. There is, also, to be a Catholic church erected here; and among other buildings an asylum for the Trinity brethren is talked of.

Prettlewell Church, a well-known sea-mark for navigators, "the largest and the fairest in the Rochford hundred," is a mile and a-half from Southend. Rickman says that it "is a handsome church, with a fine Perpendicular tower, having good buttresses, panelled battlements, and four rich pinnacles." The church consists of a nave, south aisle, a large south porch, chancel and south aisle, and a tower at the west end containing six bells. The ceiling of the west end of the nave is flat, the original roof and western arch being ceiled. There are two columns and two responds between nave and aisle, which are older than the rest of the church: they are octagonal, with moulded capitals. The columns in the east part of the nave are octagonal and concave; the roof open, of low span, with moulded tie-beams. Some portions of the old benches, worm-eaten, remain in the south aisle. The pulpit stands on the north side by the chancel. The font is original, and has octagonal concave sides, with sculptures,—the crucifixion, roses, heart, &c.: it stands at the west end by the column, with chrismatory in a niche in the column. The windows are four centred, in three five-foiled lights.

In a north window of the nave, by the chancel, are remains of the entrance to the rood-loft. A staircase on the east side of the porch-door leads to a room over the porch. The chancel is separated from the nave by a fine moulded pointed arch, springing from semi-octagonal responds. The east window is blocked up, with an elaborate modern Gothic altar-piece, containing the Decalogue, erected in front of it. In the chancel floor is a brass, date 1612, in memory of Richard Cocke and his wife. There is a low window by the chancel-arch. Several slabs are in the floor, dates 1737, 1751, 1810, &c. The pews are similar to horse-boxes, and there are a few mural monuments, mostly modern. In the vestry is an oak chest, elaborately carved and of an early date.

The tower can be seen for miles, and will be recollected by many visitors. It is a fine lofty Perpendicular tower, embattled and surmounted by octagonal embattled turrets, with octagonal crocketed pinnacles, and stone staircase in south west angle. Square chequered flintwork may be seen on the tower and parapets of the body of the church.

The church has not yet fallen into the hands of the restorer, consequently is more interesting to the architect and antiquary. If the edifice be restored, the mode of treating the two heavy columns and responds of an earlier date, between the nave and aisle at the west end, will be a question. The door in the south doorway of the church is of oak, and elaborately carved. Foundations of a former north aisle are visible.

Southchurch, a mile from Southend, consists of a nave, chancel, south porch, and a tower with one bell, and a spire. The tower is Norman, and possesses north and south doorways, plain, with zigzag mouldings. On the north side of the nave is a small Norman window by the chancel arch, and a stone staircase to the rood-loft. An Early English window on the south side by the chancel arch contains a double piscina in the window seat, similar to two cushion capitals hollowed out. The roof of the nave is a span truncated, with tie-beams, and octagonal king-posts, with moulded caps and bases. The seats are modern. The font is octagonal, modern, of good proportion, with water drain.

There are many old churches within walking distance, for those who prefer something to think about, instead of wasting their time in novel reading, and dreaming at the sea-side. The churches of Rochford, Rayleigh, Eastwood, Shoebury (north and south), Wakering (north and south), Leigh, Hadleigh (and castle), Benfleet, and Thundersley, contain interesting points.

The Southend Local Board is of recent formation, and has much to do; it meets for two hours once a week. It has already effected good, and it is a question whether it would not be well to borrow money, and deal effectually with the drainage of the old town; at present the sewage empties itself on to the beach. In Cliff Town the sewer is carried a mile and a quarter into the sea; and the cost has been put upon the rents of the houses. Of course, the tenants demur; they will, however, find in the end it is cheaper to cheat the doctor and the undertaker than to have to pay them for sickness and death derived from offensive open ditches and fragrant bouquets in the public tea garden resorts. At low water the sea recedes a great distance, and leaves many acres of ground in a muddy and uninteresting condition. If a sea wall were constructed towards the end of the pier (in front of the whole of Southend), a vast quantity of ground would be recovered, and Southend much improved. If similar places were treated in this manner, the quantity of land re-secured would be enormous, and the drainage permanently improved. The present sea-wall at the bottom of the Cliff affords an agreeable promenade *when the tide is up!* One great inconvenience in Cliff Town is the absence of shady walks; in sunny weather it is rather more than warm.

The sea, and the proximity to London, are not the only attractions connected with Southend: the walks inland are pleasant, and the country wooded and rural: the botanist will find much to repay his search among the wild flowers.

The architect is more concerned with sanitary matters than he supposes; the fact is that, in my opinion, he has really more to do with these inquiries than those appointed to carry them out. Data as to deaths are quoted from the Registrar General's report: light, air, ventilation, and drainage, are better understood by the architect than the medical man; and when the latter does interfere, he usually does more harm than good. Again, as to the analysis of the water: this may be obtained from the Board of Health, or the analytical chemist. Few medical men can accomplish this, and if they could they have not the time. And, again, who knows so well of the construction of dwellings as the architect? If architects omit to make themselves thoroughly acquainted with sanitary requirements, they must not complain if they are not consulted. At present the architect is looked upon as the man "what washes the ceiling."

Regulations for guiding the cubical contents of rooms are not much respected in sea-side residences. I suppose that keeping the windows open day and night compensates for small rooms over-crowded.

Dr. Granville, in 1841, on the Spas of England, notices a new mineral spring at Hockley, about seven miles from Southend, and gives an analysis of the water, by Richard Phillips, F.R.S., who states that one pint of the water yields,—

	Grains.
Common salt	11·96
Carbonate of lime	5·99
Anhydrous sulphate of magnesia	20·13
Sulphate of lime	1·32
	39·31*

This spa was spoken of very highly at the time. A large Classic building was erected for it, and it is still standing, although used for a different purpose.

The water at Southend is considered good for some complaints; it is supplied by the local waterworks, and derived from springs. It probably would be improved if all housekeepers were induced to use filters.

The soil is of a gravelly nature, consequently very dry.

In conclusion, Southend, at present, is only an idea. That the place in time will be much resorted to, there is no doubt; but, before that can be expected, the Local Board has much to do. In the main street there are about forty houses, and not any sewer, and in a street adjacent there are nearly as many cesspools as there are houses. The night-soil generally percolates the gravel. It would be very important if the Local Board could push matters forward instead of waiting for a fever; and, as regards public buildings, and other works, we can for the time being only imagine what they will be in years to come, provided that exertions be made to keep and render the place worthy of public esteem.

W. P. GRIFFITH.

* "Another Blow for Life." 1864.

* Error in excess of about one-third of a grain.

TECHNICAL EDUCATION FOR THE WORKING MAN FROM AN ARCHITECT'S POINT OF VIEW.†

REFERRING next to technical education from the artisan's own point of view, Professor Kerr said he did not think the workman was more selfish than any other class of the community; but there could be no hesitation in saying that the first question the workman put to himself when a scheme of technical education was proposed for adoption in this country, was—"What advantage is this scheme to bring to the workman himself?" It was all very well to talk of creating a new class of foremen, but what advantage was the workman himself likely to derive from such a scheme? Was it to advance his craft as a matter of merit? Every workman was naturally proud of his craft, and every honest man ought to stand by his craft. Although no other advantages were shown to be obtainable, if it was shown that the trade of the craftsman would be advanced in merit, that itself would be a considerable gain. The object of the movement certainly was to advance the craft; by the improvement of the workmen and foremen, through the medium of a practical technical education. The proposal was not to educate them so as to make them masters; the purpose of the present movement was, to keep the workman as such, but to raise him as regards the merit of his workmanship; and that was the purpose the men from Manchester had in view when they came up to advocate technical education. As to the question of common primary education, he himself had found that foremen in a good position, and even masters who had been workmen, were deficient in primary education. There was not that efficiency there ought to be even with regard to the three R's. They could read, of course, but not so as to employ themselves in that continual reading which alone was of any use to the mind. They could write, but not so as to be able to express their thoughts with that precision which was worth anything. They could reckon up their wages per diem at so much an hour, but in more extended calculations they were devoid of that certainty of being right which they ought to possess. It might, no doubt, be urged that the long hours and the fatigues of labour left but little time or disposition for cultivating the refinements of education. In this argument there was a good deal of weight, coming from the average class of workmen, or from those under the average whom Providence might not have favoured with anything in the shape of particular cleverness; but at the same time there could be no doubt that even a stupid man was not justified in resting all his life in primitive ignorance; and those who called them-

† See p. 387, *ante*.

selves the advocates of technical education ought distinctly to understand that the technical education must have a primary basis of common education upon which to rest; and every encouragement ought to be given to the working class kindly, handsomely, and liberally, in every way, to acquire those simple elements of knowledge they required. Passing from the question of the three R's, the lecturer proceeded to speak of technical education itself; and, referring to the British Museum and other aids to technical education, he said he thought it would be wise policy if the advantages which these institutions presented were made more generally and easily available than they were. It was proposed to distribute the Kensington Museum more over the metropolis, and to have branch museums in the country. He thought it must be admitted that this was a wise measure, and especially in view of the peculiarly practical character of the English mind. Then, if the lectures which were given in these museums, and the public libraries were thrown open a little more, great good might result to the public. It was the misfortune with regard to all libraries that those in charge of them seemed to look upon the books as so many curiosities not to be touched. These, if they were only more widely thrown open, would be most important agents in the promotion of practical education in this country. Next, a word as to what was called popular science, in which the recondite or difficult matter was brought down to the meanest capacity. Among the speeches delivered at the Society of Arts conference, one was made by a learned professor which was rather staggering. Popular science, according to that speech, was "the mere skimmings of the scientific pot." Well, assuming this to be true, if men of science in its higher sense had the general contents of the pot, the humble votaries of popular science need not be grudged the skimmings. He (Professor Kerr) held in his hand one of old John Weale's rudimentary series of educationary works, and a more useful set of books was never published in this country. Weale was dead and gone; and when he started that series of books probably his first object was but a bookseller's—to make profit—but at the same time he was a shrewd man, and it was to be supposed his business motive was to cater for such as the working classes. If so, he had most admirably succeeded, and it would have been difficult to start a scheme of more value than this series of educational books—albeit "skimmings of the pot of science." Every such effort as this having for its object the improvement of the people, ought to have the most kindly encouragement, and, if he who made two blades of grass grow where only one grew before, was a benefactor, much more were the promoters of popular education. As to the question of mutual instruction, he (Professor Kerr) was not there to speak of his own antecedents; but, he was free to confess that when he was sixteen years of age, he was a member of the mutual instruction class in a Mechanics' Institution, and he knew of no project yet devised which was more reliable, practically, in this country at least, as a means of education, than mutual instruction. Workmen meeting for mutual instruction were but doing what was done in higher walks; for what did scientific men of the highest rank meet for in the Royal Society, but for mutual instruction? From the highest to the lowest level there was something in the freedom of mutual discussion which could not be had under more formal auspices. He was proud to say that one of the most effectual agencies they possessed in regard to architectural education was a mutual instruction society amongst young men. With regard to drawing, that was an essential branch of technical education in all art-workmanship,—the very language in which alone one's ideas in respect of form could be expressed. One of the great advantages of the Continental system over ours was in the fact that, in so far as the State could accomplish it, schoolboys were taught drawing; and he would impress upon all practical men the necessity of acquiring that accomplishment at any expense. Without that no art-workman was properly qualified for his work. Drawing schools, he thought, were not sufficiently open in the evenings to workmen; if they were so, they could not fail to be of the greatest advantage. Having spoken of the necessity of learning to draw, and of the advantage of studying popular science, of conducting mutual instruction classes, and so forth, he would now inquire how all this was to be accomplished. The promoters of this scheme of technical education said it was to be done at school. He would remind the meeting of the old guilds. These were based upon this very question of technical education. They provided a definite mode of instruction for the young men of the craft; and, a young man having been so instructed, was protected from the competition of another young man who did not choose to go through the proper course. Let it not be supposed that he (the lecturer) was treading on delicate ground when he asked his audience whether or not their trades unions could be made to serve the purpose of promoting the education of young men? As to the internal organisation of these institutions he did not know anything, and did not want to know. A great deal had been said about them lately, and a good deal to their prejudice; but if this matter of technical education could be taken up by the trades, something might be accomplished which would cover a multitude of sins. Another point was the question of State aid. It was to be observed that the conference of the Society of Arts came to a conclusion in favour of State aid, or of providing the funds by means of rates. Such, however absurd, was the result arrived at. Now, he had spoken in vain that night if he had not exhibited his sympathy with the peculiar character of the English system of learning business, and with the peculiar system of English government. He had shown, he thought, his perfect sympathy with the independence of the English workman as opposed to the dependence on Government by the foreigner; and he believed and maintained that the great secret of the Anglo-Saxon ascendancy, as it existed all over the world, was this encouragement of self-reliance and personal independence and enterprise. When the question therefore was put, how far they ought to depend on State aid for technical education, he replied: not at all. They thanked Government for their museums, but believed at the same time that if even these museums, in respect of Government aid were done away with, private societies would supply their place. They thanked the Government for the Department of Science and Art; but until it was brought into more perfect harmony with the prejudices of the Englishman, that department would be in vain. Then, if not upon State aid, upon what would he have them to rely? On self-education. There was no education like self-education—what they learnt at school was but the basis for self-education. If they left off education when they left school, how little would they be benefited; but if they built upon their school education as a basis the structure might attain to any height or expansiveness. Ask the Lord Chancellor, the bishop, the philosopher, and others who had attained to elevated positions, how they got there, and the answer would be, "By self-education." The man who was determined to be educated would be educated. That was the only way in which real intellectual eminence had ever been attained, whether in exalted or in humble life. Some complained that they had not the heart to study, that they had not the time, and so forth. He knew a man, a fellow member with himself in that same mutual instruction class in a mechanics' institution, who was a common weaver, who worked hard, reading all the while a book slung upon the loom, and he was now one of the most distinguished philosophers in England. Such instances, more or less prominent, might be quoted literally by the hundred. Let this be remembered of what he (the lecturer) had said to his audience that night, that for self-education they could neither be too stupid nor too clever. He would conclude by quoting a maxim in point—"Heaven helps those who help themselves."

Mr. Thomas Paterson, in moving a vote of thanks to Professor Kerr for his lecture, concurred with him in thinking, whatever might be said of State aid, properly so-called, that they were at least entitled to have greater facilities afforded them for the acquirement of knowledge in respect of technical education by having more easy access to museums, libraries, and the like, which were the means by which in a great measure their education was to be acquired. For his own part, he thought the work was so large as to demand every energy on their own part, and on the part of their societies, and at the same time every effort that could be made for their advantage on the part of the State.

Mr. J. F. Dexter, in seconding the vote of thanks, also expressed his concurrence as to the desirability of greater facilities being afforded for the acquirement of knowledge, and said, with regard to the distribution of museums, that he did not see why other districts of London should not be as well provided as the district of South Kensington. He thought it would be well if the ratepayers themselves would secure that the libraries, when once started, should have a fair attendance and be fairly used. In conclusion, he thought if the practical suggestions thrown out by Professor Kerr were carried into effect, English workmen would not be behind their rivals of France or Germany, or any other country whatever.

The Chairman (Mr. E. Hall) in conveying to Professor Kerr the thanks of the meeting, said, it might be interesting to state, upon information in his possession, that the movement on the part of the leading trade societies in respect of technical education was, perhaps, nearer to accomplishment than was generally supposed. He held in his hand one of the reports of the Amalgamated Societies, in which there was a letter from Professor Jenkins, of University College, expressing the opinion that any seeming deficiency in intelligence on the part of the English workman as compared with some of his Continental rivals was really due, not to inferior intelligence, but to the want of the means of technical education; and urging that unless the men took the work in hand themselves, there was little hope of their improvement. In reply to this, it was stated, on behalf of the Amalgamated Societies, that the subject would receive the serious consideration which its importance demanded; and matters were looking hopeful, some progress having already been made towards the realisation of those things to which Professor Kerr had alluded.*

THE CHURCH OF NOTRE DAME DE FRANCE, LEICESTER SQUARE.

WITHIN the well-known walls, in Leicester-square, where "Burford's Panoramas" were exhibited for years, a French Catholic Church (L'Église de Notre Dame de France) has been constructed, in accordance with the system introduced by M. Boileau, architect, and under his direction. We have already spoken of this system of construction for vaulted churches, with ribs of cast and wrought iron, as applied in the Church Eugène (Paris), that of Vesinet (Seine et Oise), and of Montluçon (Allier). Its application in Leicester-square is singular, a cross church being there formed within the existing walls of the rotunda: galleries supported on cast-iron ribs occupy the exterior angles of the nave. In this building the iron groins have been made to carry the roof of the rotunda so as to admit of the removal of the large central pillar of wood formerly there. The spaces between the ribs are filled in with brickwork cemented. Other properties surrounding the building, it has been found impossible to open more than two small rose-windows in the walls (which are filled with stained glass), and the lighting is chiefly obtained by openings in the roof. A basement story admits of arrangements for warming and ventilating the church. The entrance is by a porch in Leicester-place.

The church now finished, and which is due to the initiation of M. Faure, French missionary, will be formally inaugurated on Wednesday, the 10th of June next. Messrs. Wood were the builders, and the cost has been about 2,000*l*.

The high-altar, we may add, is a handsome specimen of terra-cotta work, by Virebent, of Toulouse.

NEW CORN WAREHOUSES AT LIVERPOOL AND BIRKENHEAD.

NEW warehouses, built by the Mersey Docks and Harbour Board at Liverpool and Birkenhead for the accommodation of the corn trade of the Mersey, are nearly completed, and when finished and at work will, according to our authority, the *Liverpool Journal*, be the most perfect buildings of the kind in the world. On the Liverpool side the new warehouses, which are fireproof throughout, have been built on the site of the old Waterloo Dock, and comprise three blocks, forming a quadrangle, within the margin of which is the corn warehouse dock. The total length of the buildings is 1,485 ft. by 70 ft. in width. Besides the quay floor there are five stores available for storage, and a sixth, which is appropriated as a machinery floor. The aggregate clear internal area, including the quay floor, is 11¼ acres. The height of the building from the quay to the top of the cornice is 82 ft. The stores, with the exception of the quay floor, which is 15 ft. 3 in. high, are 9 ft. 3 in. from the surface to the underside of girder above. Every attention has been paid to the relative strength of each part of the structure, the breaking strain of the beams and girders being three times the load they are intended to carry. The total weight of grain upon the floors when fully loaded will amount to no less than 77,660 tons. The clear aggregate storage area of all the floors, exclusive of the quay and other spaces, is 48,918 square yards, affording storage capacity for

* Other lectures have since been delivered. The first of the second course, "Iron and Wood," by Professor F. C. Calvert, will be given on Tuesday evening next, in Southampton-buildings. The charge is but nominal. Working men who are willing to do something more than talk and complain should attend.

196,000 quarters of grain. Rails are laid within the warehouses, forming a communication with the main dock line.

Throughout the building the machinery for hoisting and distributing the grain is worked by hydraulic power. There are five self-acting traversing rocking cranes for raising the grain in tubs from the hold of the ship. Each crane is capable of raising a ton of grain at a time at the rate of 50 tons per hour, through an extreme distance of 136 ft. Having brought the grain to the machinery floor at the top of the warehouses the cranes discharge it into hoppers, from which, after being freed from dust, it is weighed by a single operation in 1-ton lots, and then transmitted by an ingenious arrangement to any part of the warehouses. This work of transmission is effected by means of endless bands, of which there are two running the entire length of the three stacks of warehouses. This system, it is said, has never before been introduced into England. The bands are of vulcanised indiarubber, 18 in. wide, and traverse at a speed of about 500 ft. per minute. They are capable of transmitting grain from end to end of the warehouses at the rate of 50 tons per hour. There are shoots for passing grain from one floor to another, into the holds of vessels, or into wagons beneath. Besides the cranes there are eleven hoists for barrels and sacks, and twenty jiggers for lowering purposes. The machinery has been supplied by Sir William Armstrong. Mr. G. F. Lyster, the engineer to the Mersey Docks and Harbour Board, has designed and superintended the erection of the whole of the building and appliances.

The Birkenhead warehouses are in many respects similar to those on the Liverpool side of the water, and are fitted up in the same manner. Their storage capacity is 212,800 qrs. of grain. They are not fireproof. Like the Liverpool warehouses, they have been designed by Mr. Lyster.

THE FEMALE SCHOOL OF ART.

A FINAL appeal is being made to the friends of the Female School of Art, to raise the sum of 1,500*l.*, in aid of the Building Fund of the School, and to found two scholarships. If this be done, the maintenance of the school will be assured without further help from friends. A *fête* and fancy fair will be held in the gardens of the Royal Botanic Society, Regent's Park, on the 25th, 26th, and 27th of June. In reply to a petition to the Royal Academy of Arts for aid towards defraying the debt incurred by purchase of freehold property and enlargement of school, Mr. J. P. Knight writes to the superintendent, "I have the pleasure to inform you, that the council, fully sympathising in the labours of the Female School of Art, unanimously voted the sum of 50*l.* towards the purpose stated in the said petition."

A petition for aid will shortly be presented to several of the City companies, by whom we trust the strong claims of the school will be favourably considered.

BRICK SMOKE.

THERE are some common brick-kilns at Swansea which cause much nuisance. Mr. R. Rawlinson, C.E., and the borough engineer, Mr. E. Cousins, at the request of the Local Board, have just now made a report on the subject, which, as it will probably interest many of our readers, we print:—

"Having been requested to report on the best known means of consuming smoke, &c., in the burning of bricks, we visited Messrs. Doulton's pottery kilns, at Lambeth, and Messrs. Hoffman's patent brick-kilns, situate at West Brompton. Ordinary kilns were at first erected at the West Brompton Metropolitan Railway Works, but they were violently objected to by the inhabitants in the neighbourhood. This patent was then adopted. The clay used is that known as 'London clay,' brought to the works from parts of the line of railway adjoining. It is a very heavy clay, and alone is too strong for brick-making; it is, therefore, mixed with sandy loam, from one to four or one to five parts, one part sandy loam to four parts clay.

The clay is not tempered, but is merely cut down and turned over; it is neither ground nor sorted. The clay, mixed with loam, is filled into barrows, each barrow containing materials for fifty bricks, and weighing about 450 lb.; it is then passed into a pug-mill which is in connexion with the dies: by a recent arrangement these dies are lubricated with grease extracted from soap waste of the woollen manufactories of Yorkshire. During winter the moulded bricks are aired under a shed-roof formed over the kilns, so that bricks are made all the year round irrespective of weather. The bricks are sound-looking, and are very heavy in proportion to their size: this is in consequence of the character of the clay.

Hoffman's patent kiln is built in the form of a large arched passage of a circular form on plan, within which the burning of the bricks is carried on round its circumference. There are twenty-four entrance doorways, admitting of being closed with temporarily-built bricks and clay, so as to retain heat and exclude all entrance of air by the doorways so built up; the circular chamber consisting of twenty-four compartments, or spaces, with one of these doorways to each. In the centre of the ring a chimney is erected about 150 ft. in height, measuring at the base about 16 ft. square, and from each of the twenty-four compartments of the annular chamber an underground flue leads into the chimney; each flue has a valve by which its communication with the chimney can be cut off; arrangements are made by which a damper, or portcullis, can be inserted, so as to cut off all communication between any of the twenty-four compartments of the ring kiln and the next ones.

After the kiln has been lighted the fire is never extinguished, but the burning of new bricks and the removal of the finished produce are carried on by a continuous and regular process from day to day. Two of the compartments on each side of the kiln have their entrance-doors open, all the rest being closed. By an arrangement of valves (or dampers) in the branch flues, and the larger damper or portcullis in the main flues, air is admitted by the open doors, and has to go round the whole circuit of the kiln in order to reach the chimney. From one of the two open compartments on each side of the kiln men are taking out finished bricks, and in the other they are building unburnt bricks which are not yet quite dry.

Air entering by these compartments passes first among bricks almost cold, and then goes forward to warmer bricks, and so on to hotter and hotter, carrying the heat of the cooling bricks forward with it until it reaches half-way round one-half of the kiln, at which place there is a final accession of heat from the burning of a very small quantity of coal-dust, which is from time to time dropped in through properly-arranged flues from the top of the kiln among the bricks by numerous small openings, furnished with moveable heads. The hot air, including the products of combustion, then passes forward to the bricks, which, by its continuous current, are being dried and heated, passing on among them from hot bricks to those that are less and less so, heating them as it goes on to those which are still damp, drying them, and then passing to the chimney with moisture in the form of steam or vapour taken from the damp bricks. Each day a portcullis is shifted forward one compartment, and a corresponding change is made as to the flue which is to communicate with the chimney and the air at the end of its circuit in the annular chamber. The places where coal-dust is thrown in are also advanced one compartment, and so the whole process goes on.

In the burning of this kiln there is an absence of all smoke containing sooty particles; arising from the perfect combustion of the fuel. That which is discharged from the chimney is steam or vapour from the drying bricks, mixed with gases from burning the clay. These gases are discharged into the air at about 150 ft. Since the erection of these kilns no complaints have been made by the inhabitants of the neighbourhood.

Conclusions: — An examination of Messrs. Hoffman's patent brick-kilns has convinced us that bricks may be moulded, dried, and burned all the year round, and with great economy, as also without sending into the atmosphere black smoke. The patented process economises heat to a very great extent, and thereby saves fuel. The mode of feeding the kilns ensures a combustion of the carbon of the coal; and as very much less coal is required than in the rude method of open kiln firing, local nuisance is in a corresponding degree lessened, and the gases and vapours produced are delivered into the surrounding atmosphere at the elevation of any chimney provided for such purpose. At Brompton this elevation is about 150 ft.

ROBERT RAWLINSON.
EDWARD COUSINS.

P.S.—The patented method as described is necessarily costly to establish, and can, we think, only be recommended where long continued use is contemplated. For short periods of time the great cost of the patented kiln must prevent their adoption. The nuisance from ordinary brick-kilns consists of dense smoke and vapour at the first lighting, and heated gases and vapour being given off into the surrounding atmosphere at low elevations 10 ft. or 15 ft. above the surface.

There are coke-kilns in use where flues of fire-bricks set dry are formed on the top of such kilns to connect all the vents with a chimney. The bricks in these flues become sufficiently heated to burn all black smoke before it can reach the chimney, and so prevent this form of nuisance, as in the patented kilns. The open beds and joints amongst the heated fire-bricks allows of a due admixture of oxygen with the carbon, and a transparent gas is the result. We are not prepared absolutely to recommend this method, but only suggest it as a cheaper expedient than the more costly but perfect mode by patent."

HALTON INDUSTRIAL EXHIBITION.

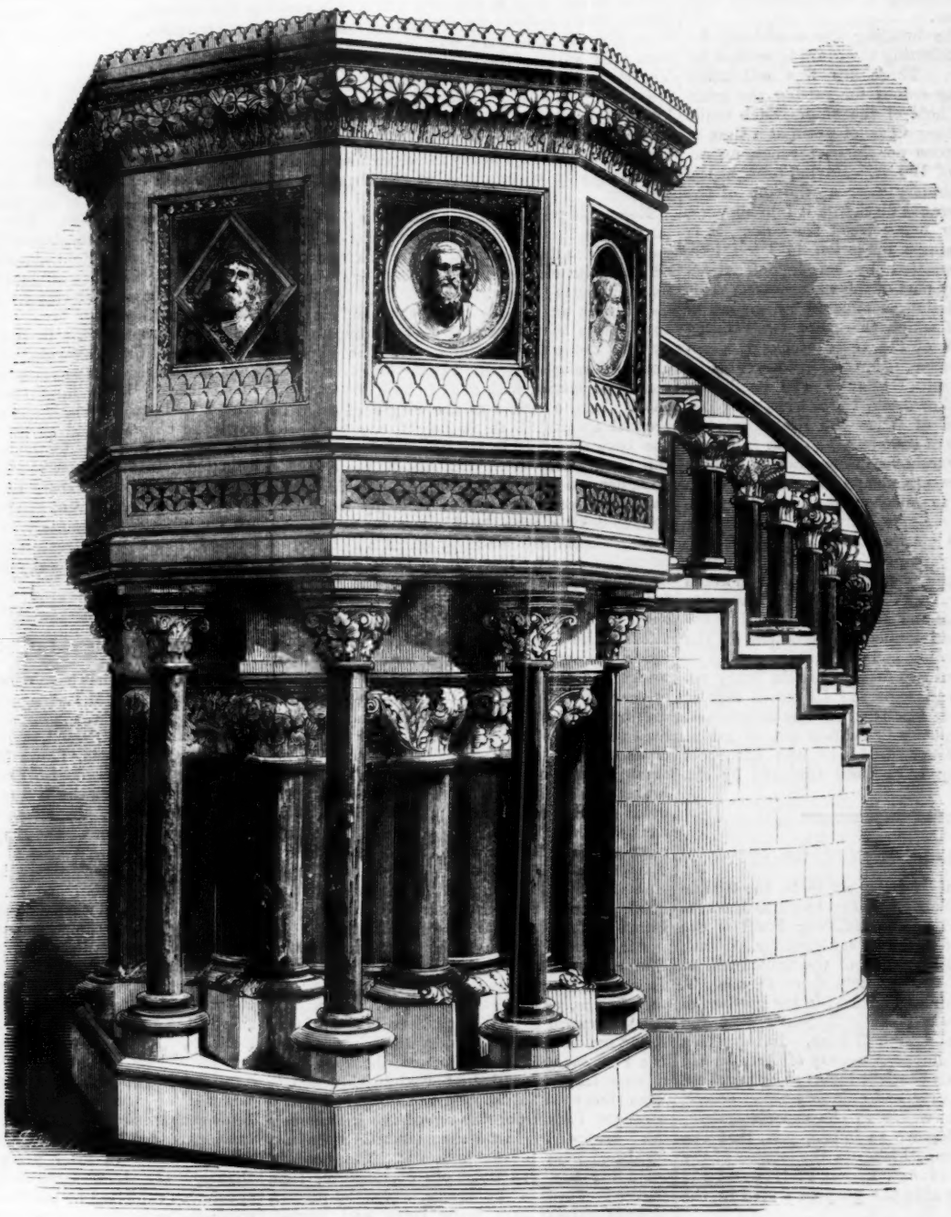
THIS Exhibition has been opened by the Right Hon. B. Disraeli, M.P. A large and fashionable assemblage was present, including the Premier and Mrs. Disraeli, the Bishop of Oxford, Miss Burdett Coutts, Baron Meyer de Rothschild, Sir Anthony de Rothschild, Mr. N. M. de Rothschild, M.P., the Ladies Rothschild, and Misses Rothschild, Mr. Julian Goldsmid, M.P., and a large number of the clergy and gentry of the neighbourhood.

The children of the schools of Halton and Aston Clinton, which are supported by the Lady de Rothschild, sang, accompanied by the band of the Grenadier Guards, conducted by Mr. Daniel Godfrey, "A Song of Joyous Greeting," a chorus specially composed for the opening of this Exhibition. After the chorus had been sung, Mr. Disraeli made a short address from the steps of the Halton mansion.

"They had collected together," he said, "an exhibition of the products and manufactures of the district which would well bear comparison with others of greater pretensions. Of the lace manufacture of the county, which in later years had vied with that of the Low Countries, he had seen specimens exhibited at public exhibitions which rivalled the productions of Mechlin and Valenciennes. There was also one part of the county where the manufacture of furniture was carried on successfully; and in working up the beech woods of the district they carried on a trade which sent its products not only throughout England, but to the colonies as well. The embroidery which they would see in the Exhibition was of great merit; and there were many departments of industry which they were about to visit which could prefer claims to public approbation. There was one thing in this county which had made great progress within the past few years—the improvement of the dwellings of the working classes. The silk manufacture was carried on and was flourishing in the county town of Aylesbury. The silk which they produced was able to compete successfully with that of French manufacture; and they not only supplied themselves, but sent a great deal over to France, which got made up and was sent back and exhibited in the shops of Regent-street as the productions of the French looms. The manufacture was steadily increasing. He had been told that nearly 200 medals would be distributed that day."

PULPIT, CHURCH OF ST. MATTHIAS, STOKE NEWINGTON.

THE accompanying engraving represents the pulpit that has been set up in the Church of St. Matthias, Stoke Newington. It is of stone, with marble adjuncts, and was designed by Professor G. G. Scott. Mr. Farmer executed the work.



STONE PULPIT; CHURCH OF ST. MATTHIAS, STOKE NEWINGTON.—PROFESSOR G. G. SCOTT, ARCHITECT.

ABERDEEN PUBLIC AND MUNICIPAL BUILDINGS.

THE accommodation in the County Courts at Aberdeen having become very defective, it was found necessary to provide additional accommodation, and accordingly in the year 1861 it was resolved to erect a new Court House. Designs for this building were obtained from three architects in competition. Some time having elapsed, and there being no proper municipal and county buildings in Aberdeen, it was proposed to take advantage of the opportunity which the building of a new Court House would afford, for the erection of municipal county buildings also; and a scheme was mooted by which it was proposed to erect one large building, combining Court House, municipal and county buildings in one. This scheme it was ultimately resolved to carry out, and for this purpose a site was obtained at the west end of Union-street, the principal street of the city, and in the very centre of public business. The site is an irregular one, having frontage both to Union-street and to Broad-street—a street of secondary importance—the back of the buildings looking to the prisons, and to property of an inferior description. Plans for this enlarged building were accordingly procured and are now being carried out.

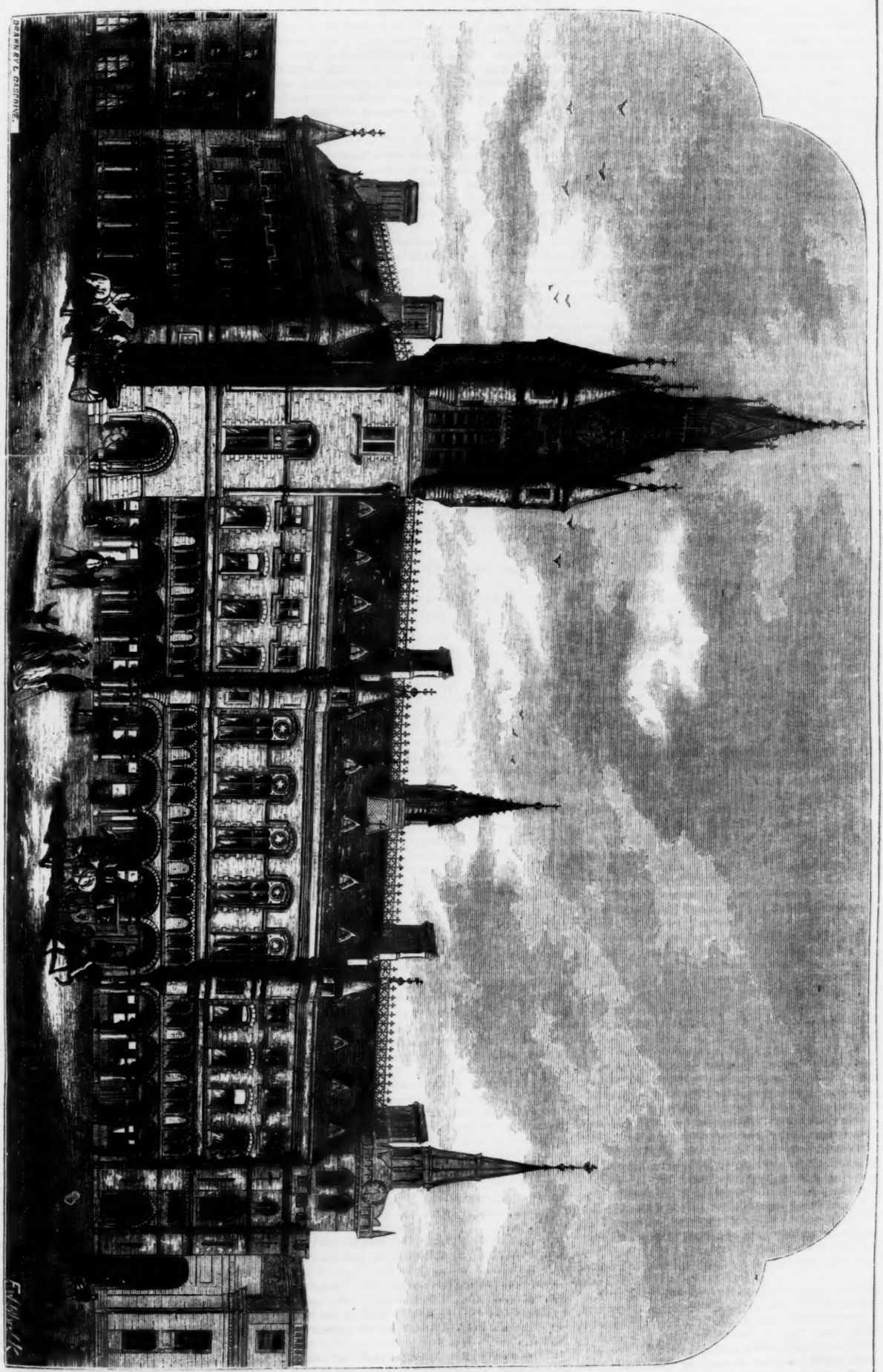
In the building, as arranged, the right-hand portion to Union-street is to be appropriated for the use of the Court House and county officials; the left-hand portion is to be occupied by the town's officials and police commissioners. Part of the accommodation in the town's portion of the buildings is to be let as chambers for business purposes. The centre of the ground-floor of the building is occupied by the entrance to the court-rooms. The entrance is through a corridor, 60 ft. long by 16 ft. in breadth and 24 ft. high. The walls of the corridor are of freestone, having a groined roof of the same material. At the end of the corridor is a broad staircase, the first flight of which leads to the court-rooms at the back of the building. From the landing of this flight double flights of stairs, one on either hand, lead to a large hall, occupying the centre part of the building in the upper floors, the joint property of the town and county.

The back portion of the buildings consists only of two stories; whereas the front, as will be seen from the elevation, is four stories in height.

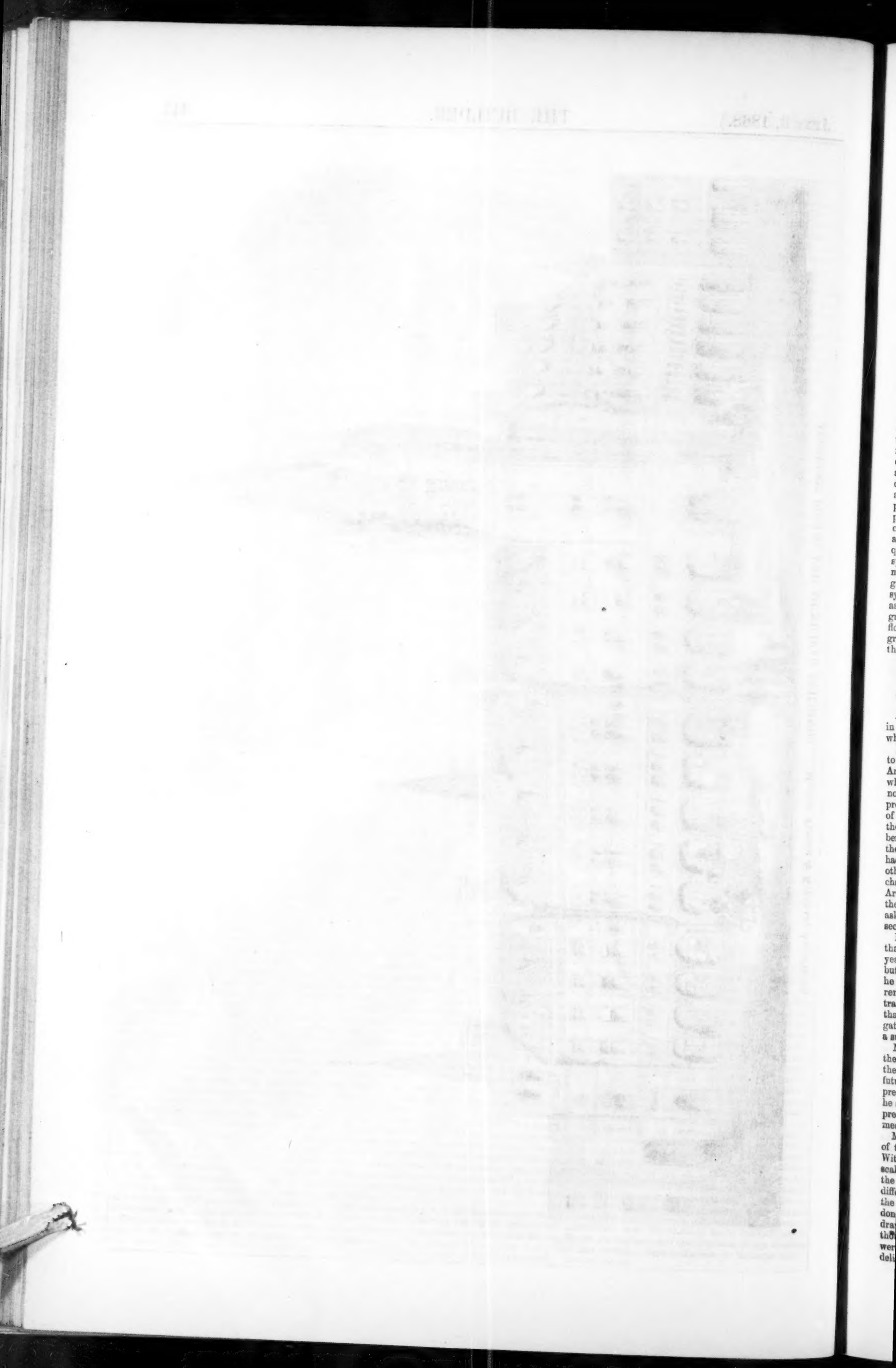
The style adopted in the building is a variety of the Scottish architecture of the sixteenth century. The material used in the erection is the Aberdeen grey granite.

The tower at the right extremity of the building is an old structure, faced up about the beginning of this century in the style of Gothic then in vogue, and with which the architects have not been allowed to interfere. The principal feature of the edifice,—the great tower to the left, at the corner of Union-street and Broad-street, rises to a height of 185 ft.; and through it is the entrance to the portion of the building occupied by the municipal authorities. The height of the two principal fronts, to the parapet, is 64 ft.

The total cost of the building, when completed, is estimated at from 48,000*l.* to 50,000*l.* The contractors for the various departments are:—For the mason's work, Mr. George Donaldson, Aberdeen; for the wright's work, Mr. James Coutts, Aberdeen; for the plumber's work, Messrs. Charles Middleton & Son, Montrose; for the plasterer's work, Mr. Robert Henderson, Aberdeen; and for the slater's work, Mr. Alexander Adam, Aberdeen; and the work is being carried out under the inspection of Mr. Thomas Sidey, clerk of the works. Messrs. Peddie & Kinnear are the architects.



ABERDEEN PUBLIC AND MUNICIPAL BUILDINGS.—MESSRS. PEDDIE & KINNEAR, ARCHITECTS.



CONVERSAZIONE, INSTITUTION OF CIVIL ENGINEERS.

AT this *conversazione*, held on the 26th ult., a diamond rock boring machine was exhibited by Mr. Appleby, which appears to be more simple in arrangement than that exhibited at the Paris Exhibition of 1867, although it bores a hole at the same speed and of the same diameter and depth. The boring head consists of a number of diamonds set in a ring, cutting a chase of about ½-in., and it takes out a solid core of about ¾ in. diameter, the finished size of the hole being therefore about 1¼ in. diameter, which is put down at a speed of about 1½ in. to 2 in. per minute.

Amongst numerous other improvements and inventions, Messrs. R. Moreland & Son, of Old-street, exhibited an improved method of constructing floors for buildings. This system of flooring consists in fixing wrought-iron girders at given distances apart on the walls of buildings, and then placing between them on their lower flanges a number of wrought iron bow and string lattice girders; and on the upper or curved surface of these laying corrugated iron throughout the floor. Concrete or other material is then laid on the corrugated iron to the desired form and thickness, and sleepers, joists, and floor-boards may then be laid on the concrete in the ordinary manner. The ceiling joists are notched or otherwise, fixed on the lower part of the lattice girder, and are lathed and plastered in the usual way. The advantages claimed for this system of flooring are the adaptability of it to all spans and positions required in ordinary buildings, particularly in large spans; and it is more economical and much more rigid than floors constructed with rolled girders: large spans may be constructed by this system without the intervention of main girders, as the wrought-iron girders are made of the greatest depth possible, being kept close to both floor boards and ceiling, thereby ensuring the greatest amount of rigidity and strength, with the least possible quantity of material.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of members was held at the House in Conduit-street, on Friday, the 8th ult., of which we have not yet given a notice.

Mr. Rickman, one of the delegates appointed to represent the Society at the meeting of the Architectural Alliance, read his report, by which it appeared that there had been really no meeting at all, an insufficient number being present to constitute a quorum. In consequence of this fact, he had no special report to make on the subject, but he read a letter from Mr. Chamberlain, pointing out that the Alliance had at their former meetings effected some good, and had transacted some important business. Among other things, they had adopted the scale of charges drawn up by the Institute of British Architects, which had proved an advantage to the profession generally. In conclusion, he asked their opinion as to the best method of securing its future success.

In answer to a question, Mr. Rickman said that nine or ten delegates were present last year ready to take part in the proceedings, but from some accident or other (in consequence, he believed, of a train not keeping its time) the remainder did not arrive until it was too late to transact any business. He hoped, however, that four or five other societies would send delegates this year, and, if so, the meeting might be a success.

Mr. Ridge was very much inclined to question the advisability of sending any one to represent them at the meetings of the Alliance for the future. As, however, Mr. Rickman had expressed such a strong opinion in their favour, he should not take any steps in the matter at present, unless it was the evident wish of the meeting that he should do so.

Mr. Roger Smith always had a good opinion of the object the Alliance was intended to serve. With regard to the special points raised as to a scale of charges, there were various opinions on the subject, but it was caused by the fact that different charges were made in different parts of the country. He argued that the Alliance had done well in adopting the scale of charges drawn up by the Institute of Architects, and thought that it ought to be supported, as there were many other subjects which required the deliberation of its members. He believed that it would be a mistake to withdraw from it because the meeting last year had been unsuccessful. All members who attended it should look to the advantage of their profession; for they must remember that by raising their profession they raised themselves.

After a short discussion, it was resolved that Messrs. Roger Smith, Rickman, Matthews, and the President should attend as representatives of the Association at the next meeting of the Architectural Alliance.

The Chairman read a letter received by the committee from the Master Builders' Association, requesting them to allow a deputation from that society to wait upon them. He stated that an answer had been returned declining the request, on the ground that it would be putting the Builders' Association to considerable expense for no purpose, as many of the members of the Architectural Association were students, and others belonged to the Institute of Architects, where they would have an opportunity of hearing anything which might be advanced by the deputation which was to attend that body.

Mr. Roger Smith brought up the report of the committee appointed by the association to attend to the department in the Paris Exhibition allotted to architectural drawings. He expressed himself rather disappointed with the result, and said that the committee had guaranteed a certain sum in case of emergency, and they had been drawn upon to the extent of 3*l.* 8*s.* a piece. The exhibition of the drawings included many objects of merit, but he did not consider that it in any way adequately represented English architectural art at the present day. The success of the collection, such as it was, was mainly owing to the exertions of the committee.

Mr. Matthews then drew attention to a plan for utilising superfluous heat from ordinary fires, which elicited a short discussion.

THE NUT FOR PROFESSIONS TO CRACK.

III. PAYMENT OF OPERATIVES (AND INCIDENTALLY OF DOCTORS).

THE *Builder* is a journal "for the architect, engineer, operative, and artist," and having now, by your courtesy, had space to consider the "Nut" proposed with regard to the two former, I come to the operative, which has been well said to be absurdly called a "class," being merely the body of society—its body, as distinct from limbs, special organs, tumours, ulcers, clothes, armour, and other excrescences and appendages.

By "operatives" we understand *all* those necessary to a nation's manual work: consequently all of both the owners (or holders) and the users (if these be different) of the tools or capital employed in such work,—all who claim such names as builder, brewer, printer, &c. Now, the first thing operatives seem to need telling is, that their only right or normal condition is where the possessors and users of this capital are entirely the same, none either working with what is not his own, or owning what another is controlling and using; and that, though this state of things may no more exist anywhere, or be ever expected to exist rigorously, than a community without sick people, orphans, or debts, yet it is the state of equilibrium towards or from which every society is moving; and if moving *towards* it, from however great a distance, is healthy; but if travelling *from* it, then, however little removed therefrom, is in course of dissolution and destruction.

The following, then, will have no reference to a dissolving community, which no truthtelling can benefit; but will apply only to operatives who are tending towards, or resolutely intend, this their normal state. Any who, or rather any which, are not only toiling on contentedly (?) upon another's capital, but increasing and multiplying on what he may happen to find it expedient or necessary to pay them, and so regarding this as the proper, intended condition of themselves, or their children, or somebody,—"the state of life into which it hath pleased God to call" somebody,—these I do not include in the term "operatives." For how can they be called so that neither profess nor mean, nor are meant, ever to supply what is necessary to a single piece of work—the capital and labour? In fact, our language commonly does not call them either workmen, or even men or women, but "*hands*," by an idiom as yet confined, I believe, to English—a phenomenon, by the way, that those who speculate on the significancy of changes of language in rotten old races would find worth looking at.

We are to show, then, how any community not merely dissolving and decaying must needs be approaching the state of having no mere "*hands*," but all operatives, in the strict sense of supplying both the requisites of work. It were easy to show how this process must constantly go on, and the number of mere "*hands*" grow less and less, in a people holding, believing, or worshipping what Englishmen profess to hold, believe, or worship. But the difficulty is to get any English reader to remember, or bear in mind for one minute, what things he most loudly and constantly professes. Most strangers would take for granted, as to any nation they visit, that no public words, neither their laws nor their popular songs, were more intended than what they utter to their deities in their temples. This is the kind of material by which Dean Stanley judges the Russian Dissenters called *Staroviertsi*, or "Old-faith-men" (professedly adhering to the primitive Christianity, or that of the first fifteen centuries, prior to all so-called reforms). That singular people seem of such literal, dull, and prosaic minds as to suppose, for instance, when they address their Deity in church (like the Englishman, once a month) in these terms,—"Lord, who shall dwell in Thy tabernacle, or who shall rest upon Thy holy hill? He that walketh uprightly, and worketh justice; . . . . in whose eyes a vile person is contemned; . . . . . he that putteth not out his money to usury," &c.,—that literal material money (such is the gross materialism of their minds) has to do with getting to heaven!—that so spiritual a thing as religion is concerned with their daily use of such things as roubles and kopecks! * * *

For every trade or craft there is a certain quote of capital (measurable in money) necessary to each man's effective employment. It is not always to be found from what a single or even ten isolated operatives require; but if you take a hundredth of what just employs 100, or a thousandth of what employs 1,000 and no more, you have in each case the same quote. This sum, which none can ascertain better than a "*hand*" of that craft, must be fixedly known by the whole craft, and it must be settled among them that whoever has not this *head-money* (as the word "capital" rightly means) is no right workman, but only a "hand;" and that to get this is so essentially a hand's first duty that, till it be gotten, no deed not contributing thereto is even *harmless*. For every hand which, while without this quote of wealth, is making any profit not to itself, but to another, is so far destructively working against its owner, craft, and nation.

Now, in a trade that know their head-money, suppose 100 men working together. Consequently there must be among them the capital that I call 100 head-moneys. But suppose this very unequally shared, and, for simplicity's sake, thus: fifty have none of it, but are mere "hands;" forty-five more have just what would employ forty-five, but no more. The remaining five must, therefore, have invested fifty-five head-moneys, and, say, in this proportion: twenty, fifteen, ten, eight, and two.

First, you have to learn that, as long as this is so, the entire control and command of the hundred's labour must belong to these five. No others can have any voice; but what relative voice must each of these have? If you say their votes must tell as the above numbers, though you are very near right (in figures), you are wrong enough to ensure your infallible ruin. They must tell as 19, 14, 9, 7, and 1; for they rule, observe, not by virtue of their whole capital, but only of their *supererogatory* capital; otherwise the 45 common workmen would have each a vote; but they are entitled to no voice at all, as long as none of their capital helps to employ others. It is absurd to suppose the personal capital needed by a man's self can give any ruling power. *Personal* capital gives him the privileges of workmanhood, as distinguished from mere handhood, but not a penny of aught but his supererogatory capital (which we may call *super*-capital) can give him any rule over others.

Co-operators must not suppose they can afford, in any the smallest particular, to adopt the rough and ready shifts of common thieving companies (limited), which let a large and small shareholder's vote count alike, being too busy with outsiders' pockets to care for more than the vaguest shadow of justice among themselves. Co-operators have a job like the sub-

marine cable covering, where any single pin-hole destroys, and cannot be so small as not to entail entire ruin. I read lately of some poor Lancashire ones elaborating wondrous rules, whereby a holder of 100 shares was to find the last ten had only the voting power of the first two, or somewhat of the sort. Vilest and most suicidal ochlocracy a mob ever devised! For what end do these wise men of the North suppose any man will put capital to another's labour but either to direct that labour or to rob him? Then, if the last shares in the hundred are not to have the full directing effect of the first ones, to whom do they think, except a swindler for some thieving purpose, will it be worth while to invest those last? There are but two possible motives; and to say you will have any penny of supererogatory capital not ruling you, is to say it shall only come to rob you! So every society that do not allow each penny of super-capital (and of none but super-capital) its full and entire ruling power may be sure their sin will very soon find them out.

Now, of course all co-operators understand by this time that an operative can never receive his just due but in two parts—one a regulated daily *allowance* that should always be less than the current employers' wages, and, indeed, unless the latter be grossly and unusually curtailed, must needs be less, and ought never to be called by the same odious name; the other part uncertain, though always making with the former more than the current wages, and receivable only when it is ascertained, by the periodical balancing of books, at the end of each quarter, or longer interval. This portion has been badly and confusingly called "profits," and barbarously "bonuses;" but I will call it the *dividends*. It is not the only just way, but a just one and the simplest, to divide these in the proportions of each man's receipts of allowance since the last division, but of course only of allowance for labour, not sick allowance. Hence, whatever ratios have been established between the daily allowance of different classes, the same will be the ratios between their whole earning, when working equal times. And observe that the ruler and manager is entitled both to double an ordinary allowance, and a double share in the division. This has been settled last by an Apostle,—"Let the elders that rule well be counted worthy of double honour," which might equally have been translated "a double *honorarium*," and applies, observe, to worldly business; for he adds next, "especially they who labour in the word and doctrine;" *especially* implying that it *also* applies to those labouring in other things. Moreover, that the words "double honour" *chiefly* involve double *pay*, you may know from what our Lord said of the son whose Corban was an excuse to "honour not his father or his mother," where unless "honour" included hard cash there would be no meaning at all. And, in case you should fancy this proportion a matter on which Divine views may vary, like human, with the age, please to observe, while you nowhere find any other, this one was exactly the same for the patriarchs. Among them an eldest son, as inheriting the rule of his father's clan, was to have the ruler's *double* share in all things; and this was too settled a point, before Moses's time, for him to be ordered even to state it, but only to forbid any father to alter it for private affection!

The Divine right, then, you see, of the manager, as long as you, by keeping him so, imply that he rules well, is to double emoluments. You may vote him anything more, but not less; and to subordinate rulers or foremen, what excess you please.

But you ask, perhaps, what is the difference, in this division, between the men who have their head-money and the "hands" that have it not? Simply, that the former can take their share, while the latter can only have theirs credited to them in the books as so much capital: they can touch nothing but their allowance till their personal head-money shall be thus made up.

But a "hand" wants to leave, to emigrate, or dies; or a workman with just his head-money or with any super-capital does so: what is each entitled to take away, or his heir to have? Take, first, the case of one having his exact head-money, and dwelling still at hand. He can require, on the day he leaves you, only the capital he brought at his entry. In the week after leaving, or in the next, or the tenth, or the hundredth week, he can remove whatever he brought in or earned in the first, or second, or tenth, or hundredth week after entering. For the society is entitled to the use of each penny of his personal capital for as many days as it gave him membership. But all super-capital he takes away on the day of leaving, because he has exercised the ruling power that each penny thereof gave, for just as long as that penny has been invested. You see, then, that, whether he has super-capital or not, it will generally happen, unless he brought in his full head-money at entering, that different sums become due to him only at various times after leaving: yet you need never make more than one payment. You will find in all school arithmetics *above a century old* (that is, all that were written before the extinction of the worship of the true God in commercial England) a rule called "*Equation of Payments*," which is not printed now, because thieves have no use for it. That rule shows you on what day to pay any of these sums in a lump, whether the whole of them, or only those not removable when the member left.

For example, suppose the head-money fixed at 25*l.*, and that a "hand," at his entry, brought only 15*l.* After six weeks there was a quarterly division, and he was credited 2*l.* 10*s.* 3*d.*; again, at the next quarter, 6*l.* 11*s.* 7*d.*; at the *next*, 5*l.* 14*s.* 4*d.*: making, beyond his head-money, 4*l.* 16*s.* 2*d.*, but of which he only leaves for super-capital 2*l.* At the next audit his dividend is 7*l.* odd, of which he removes all but 1*l.*, and after three weeks he leaves.

Now, at leaving he is entitled to the 15*l.* wherewith he entered, and the 2*l.* and 1*l.* super-capital:—

	£	s.	d.
In all	18	0	0
Six weeks later	2	10	3
Thirteen weeks after that	6	11	7
Thirteen weeks after that, the rest of his head money, or	0	18	2
	£28	0	0

Now, to find at what time he may receive the whole 28*l.*, the old arithmetics tell you rightly to multiply each debt by the time (from any fixed date before or after) to its becoming due, and divide the sum of these products by the sum of debts, thus—

Weeks after notice to leave.		£	s.	d.			£	s.	d.
1	There are due	18	0	0	which × 1 =		18	0	0
7	,, ,,	2	10	3	,, × 7 =		17	11	9
20	,, ,,	6	11	7	,, × 20 =		131	11	8
33	,, ,,	0	18	2	,, × 33 =		29	19	6
	Divide by sum of debts				£28)	£	297	2	11
					10 weeks 4 days.				

So that nine weeks four days after leaving is the time to pay the whole, if he claims none earlier.

I will now take the case of a mere "*hand*" leaving without having made up the head-money. Suppose it 60*l.*, and that he entered with 10*l.*, and was successively credited the following dividends, but leaves or dies without having attained full membership.

	£	s.	d.
He entered with	10	0	0
7 weeks later was credited	5	2	3
13 weeks after that	9	16	10
13 weeks after that	10	5	4
13 weeks after that	4	18	1
46 weeks (and leaves)	£40	1	6

Now, if he had made 60*l.*, you would have been entitled to use each part thereof forty-six weeks. But the use of 60*l.* for forty-six weeks is plainly the same as using 40*l.* for sixty-nine weeks (because $60 \times 46 = 40 \times 69$). Therefore he can only receive the first 10*l.* after twenty-three weeks from leaving, and each sum sixty-nine weeks after it was earned. Each is to be reckoned as earned from the middle (or thereabouts) of the time in which he was earning it. Thus:—

Weeks after leaving.		£	s.	d.			£	s.	d.
23	becomes due	10	0	0	which × 23 =		230	0	0
27	,, ,,	5	2	3	,, × 27 =		138	0	9
37	,, ,,	9	16	10	,, × 37 =		364	2	10
50	,, ,,	10	5	4	,, × 50 =		513	6	8
63	,, ,,	4	18	1	,, × 63 =		308	19	3
	Divide by sum of debts	£40	1	6	£1,554	9	6		
					38 weeks 6 days.				

Therefore thirty-eight weeks six days after leaving he may receive the whole.

Necessarily every co-operative body must have a doctor to tell them who is sick, and who entitled to sick allowance, and how much. Now, in order that he may find it worth while to attend to these things thoroughly, there is only one possible mode of paying him, and it is the simplest possible. He must take nothing for any visit or any medicine to the members themselves (I am not speaking of their families), and he must undertake all this for a fixed unalterable *rate of percentage* on the company's whole earnings. You must deal with no doctor who suggests any other base, and the rate per cent. once fixed must never vary, be the company large or small, growing or dwindling, rich or poor, healthy or sickly.

Another learned officer has to be paid similarly, only a far less percentage, because he may serve as many as 100 or perhaps 1,000 doctors could physic. This is the actuary, who settles what is just and safe in all the *non-operative* money matters, as superannuation, widowhood, &c. If you had only to do with my present subject, payment of operatives, he would not be needed; for trade has reference only to pure justice, and a schoolboy can keep your books as here shown, and any system that gave a farthing to one man which this gives to another is mere theft. Questions of degree come only in the provident or non-trade affairs. And for *these* matters a company, which is one simple body for work and trade, will yet have to be divided into several, somewhat thus:—

A	Bachelors.
B	Married, without children.
C	Having 1 or 2 children.
D	Having 3, 4, or 5 children.
E	Having 6, 7, 8, or 9 children.
F	Having more than 9 children.

Each of these ought to be so far an independent body as to have separate right to fix their head-money, and be completely separate in their provident funds. Hence, if the birth of a child removes the father out of grade C, and he has not paid up the additional capital that D have fixed for their membership, he must be allowed to draw no dividends till they shall have made up that addition.

In fixing all such points they require the actuary, who must be, like the doctor, their *percentage partner*, at an invariable rate.

E. L. GARBETT.

PLAGUE STONES.

I BEG to supply you with some further information with reference to plague stones. During the years 1665 and 1666, the little village of Eyam, in North Derbyshire, was visited by the plague. To prevent the spread of the disease, it was agreed by the inhabitants, at the suggestion of the rector, Mr. Monpesson, that none of the villagers should pass certain boundaries. At points on the "*cordon sanitaire*" were placed troughs, containing water, in which the villagers placed money, which was exchanged on the following day by the people of the surrounding district for bread and other necessaries.

One of these troughs existed within my recollection; it was hewn out of a piece of rough sandstone, and measured about 2 ft. 6 in. cube. It was broken up some years ago. A well, called Monpesson's well, that was used for the same purpose, still remains, and is an object of great interest to persons visiting the neighbourhood. For further particulars, see "Wood's History of Eyam."

T. G.

"A QUESTION IN RESTORATION."

SIR,—I am glad to see the question on this subject started by Mr. Underwood (p. 378, *ante*), because it is very important that some definite rule should be laid down for the guidance of all engaged in the important work of church restoration.

My maxim in all cases is "conservation, not destruction," being of opinion that every feature of an ancient building tending to show its history should be carefully preserved.

Such a rule being admitted, as I believe it will be by all archæologists, to be the correct one, it follows in the case under consideration that if Mr. Underwood "puts in two new windows such as" he "has evidence to prove were similar to the rest," he will completely blot out the page in the history of the church which reads that two of the thirteenth century windows were in the fifteenth reconstructed. If, on the other hand, "he, having reproduced the tracery, encloses it in jaumbs and head of Perpendicular character," he destroys all record of the interesting fact that the thirteenth century jaumbs and arch were re-used with the new tracery in the fifteenth. If, again, he "reproduces the tracery, as well as jaumbs and arch, as he finds them, copying each stone with its defective arc,"

he completely destroys the old work, and the "sermon in stones" cannot be read without a verbal exposition.

I should say, neither "make new" nor reproduce, but carefully reset every stone of the old work that is not utterly perished; and if any are so much perished that they cannot be reset as they are, cut out and replace the smallest possible piece that will suffice to make the work fit again; if, however, the work is so utterly gone that it cannot be reset, re-use at least one or two of the best pieces of each section, no matter how decayed, to perpetuate the history, and to show that you have read it aright, and reproduce the rest stone for stone, "defective arc" and all.

By adopting this course you not only preserve the history of the windows, but escape the horns of a dilemma, and the work will possess a value in the eyes of all true archæologists (the only persons whose opinion is worth consulting) which no new work or total reproduction, however careful, could command. By them the "defective arc" (if proved to be historical by a presence of only two or three old stones), like the "defective arc" of a leg broken in battle, will be valued for the history it carries with it.

If the rule I have thus endeavoured to lay down were universally adopted we should not have archæologists detesting the sight of a "restored," which often means a "destroyed," church, and our country would abound with the records of its own history.

J. P. PRITCHETT.

SIR,—I have always felt that, to find a proper solution to such questions in restoration as that proposed by Mr. Underwood in your issue of May 23rd, some reconcilation must necessarily be effected between the views of the mere antiquary and those of the art-architect. The antiquary says to the restorer, "You have no right to take away from me what I consider my birthright,—the power of examining the history of the works of my forefathers through their structures,"—a most admirable principle to lay down, but one that may be easily carried too far. To give an example,—perhaps an excessive one, but the excess will only make plainer what I mean:—The whole of the interior wall-surfaces and groining of Salisbury Cathedral are coated with whitewash, which was most probably first applied to them in the early Puritan days. Through this whitewash it may be discerned that the whole of the walls and groinings were painted in a very exquisite manner, the paintings apparently remaining perfect. Now the antiquary, to be consistent, must leave the whitewash still remaining, for the whitewash as much represents a part of the history of the building as the lovely colours which it hides. Yet, surely no antiquary would wish the lazy, fanatic whitewash to remain, and the diligent, pains-showing work done by God-fearing men for the glory of Christ's Church to be obscured? Taking this for granted, where will the antiquary draw his line, dividing what is to be preserved from what may be destroyed? I think the decision cannot be left with him alone, who only too often interprets Mr. Ruskin's golden rule for restorers, "Better a crutch than a lost limb," as forbidding the excision of a hideous tumour.

Now for the other side of the question. As in the supposed case given by Mr. Underwood, the architect says, "Such and such a part of the building is in a dilapidated state. The part is evidently a late insertion, and a careless one too, and, to my mind, forms an eyesore in the building. How am I to restore it? There are the three usual courses open to me:—1. To make good and sound the existing features with new work similar to the old, so far as may be necessary for stability; 2. To rebuild it in accordance with what was evidently the original design; or, 3. To design something of my own harmonizing with the original work, as far as may be, but sufficiently differing from the original to mark it the work of the nineteenth century. Which shall I adopt? If I adopt the first course, I shall be accused of perpetrating a lie in every new stone I insert. If I adopt the second method, I shall be soundly rated for having destroyed "the most interesting feature in the building," by robbing the antiquary of the power of reading the history of the edifice in its structure. Or, if I am bold enough to use the third course, my presumption in having dared to think that anything that I could design was fit company for the "glorious work of our forefathers," will meet with all due condemnation."—Happy architect!

With all deference to more learned opinions than my own, I cannot but think that, in any case similar to the one mentioned by Mr. Underwood, a little consideration will show us that at any rate the first of the above methods of "restoration" ought not to be adopted, for it is very evident that the specimen he cites possesses no value except antiquarian value, and is in fact a blot on the *architecture* of the building; therefore, to put in new work similar to the existing features, is making a *sham antiquity*, which, having no value as a thing of beauty, has consequently no value whatever, and is merely the perpetuation of an eyesore. I would then submit that the architect, having been loyal and conservative towards the building under his hands as far as possible, should at such points become radical, and boldly cut away the decayed eyesore, heedless of the wails of antiquaries and the carpings of critics, who can easily find fault, but cannot quite so easily advise what can be done better; taking for his motto an extension of Mr. Ruskin's surgical simile—better a newly healed scar than an eye-burning tumour.

Which of the two remaining systems of restoration should now be carried out I must leave for further consideration.

CHARLES NOEL ARMFIELD.

JOHN SPILLER.

SIR,—In the year 1794 died John Spiller, a pupil of Bacon, the sculptor, a distinguished student of the Royal Academy, and a sculptor of great promise. He was only thirty-one years of age, having been born in 1763. His wife—said to have been very beautiful—died of the same disease, consumption, a few months after him. What a pathetic story have we here! What is known of this young and now forgotten genius? All that I know from reading is, that the statue of Charles, which occupied the centre of the piazza of the Royal Exchange, was the work of Spiller. The enthusiasm of the young artist was so great, we are told, that, though consumption was doing its fatal work, he persisted in labouring at this statue, in spite of earnest advice to the contrary. He was willing, he said, to die at the foot of the statue. It was completed, and raised to its destined site. The young martyr to his profession gazed upon his finished work, returned home, and soon was known no more. The statue escaped at the fire which occurred on the 10th of January, 1838. In speaking of this gifted sculptor, the elder D'Israeli says,—"The energy of his labour and the strong excitement of his feelings had already made fatal inroads on his constitution." No mention is made of Spiller in Allan Cunningham's "Lives of Painters and Sculptors." If any of the readers of the *Builder* are in possession of any particulars regarding John Spiller's life and labours, and will communicate them, it would oblige your correspondent, and might be not without interest to your readers.

S. M. P.

DISPOSAL OF SNOW IN THE CITY.

SIR,—*On dit*, the practical testing of the different plans proposed is again adjourned until the first week in August. It is to be hoped no further delay will take place, for if put off until winter the carrying out of the successful competition will be parallel with ordering a new fire-engine when the house is already in flames. Can you inform me what is the cause of delay? Is it really press of business?

A COMPETITOR.

DRAINAGE OUTSIDE METROPOLITAN AREA.

IMPORTANT TO SUBURBAN BUILDERS.

AT the Marylebone Police-court, on Monday last, a case was decided by the magistrate which is of importance to builders of houses outside the metropolitan area under the jurisdiction of the Metropolitan Board of Works, and is also of interest to intending occupiers of such dwellings.

By the 25th & 26th Vic., c. 102, sec. 61, it is enacted, amongst other things, "that no person shall make or branch any sewer or drain, or make any opening into any sewer vested in the Metropolitan Board of Works" without the previous consent in writing of that Board; and "every person so offending shall for every such offence forfeit a sum not exceeding 50*l.*, and the Board may cut off the connexion between such drain and their sewer," &c. The defendants in this case were Messrs. Mudson & Dale, of 12, Princes-terrace, Upton-road, St. John's Wood, builders, and they were summoned by the Metropolitan Board for having made a sewer from certain houses erected by them in the parish of Willesden into the main Ranelagh sewer, in Paddington parish, in contravention of the statute.

The case for the Metropolitan Board was based as follows:—Their engineer reported that the parish of Willesden, although formerly within the limits of the Metropolitan Commission of Sewers, and draining naturally into the main sewer in question, was excluded from the jurisdiction of the Board of Works by the Metropolis Local Management Act, 1855, and permission to drain property into the sewer from the Willesden side has been invariably refused by the Board. In the present case part of some of the houses is in the parish of Paddington, and within the Board's jurisdiction, and a part, in some instances the whole house, is in the parish of Willesden, and beyond the Board's jurisdiction; but the entire block forms one compact property. The question as a whole appeared to the engineer to come under the general one of the admission of the sewage of outlying districts into the Metropolitan main drainage system.

The solicitor of the Metropolitan Board, referring to the houses outside the Board's jurisdiction, remarked, that "it would seem a lamentable defect if nine or ten houses out of a block of seventeen or eighteen could be drained that the other seven or eight are not to be."

At a previous hearing of this case defendants admitted that they had made the sewer connecting the Willesden houses with the main sewer, but that it was done in ignorance; whereupon the magistrate adjourned the matter, the defendants in the meanwhile to confer with the Metropolitan Board.

On Monday, Mr. Fry, for the Board of Works, said that no difficulty was raised as to the drainage of the houses within the Paddington boundary into the main sewer, but the Board had "no power" to allow defendants to drain the houses in Willesden into the main sewer, although they were only a few feet beyond the parish boundary. In this case the Board asked that a penalty might be inflicted, as a caution to other builders.

Mr. D'Eyncourt, remarked, that outside the area of the Board of Works' jurisdiction houses were being built so rapidly that the outlying suburbs would soon become large towns. Were they to have no drainage?

Mr. Lovick, assistant engineer to the Board of Works, said that was a question for the inhabitants of those districts. The Board had nothing to do with their drainage.

Mr. D'Eyncourt then asked what would be the result if the builders in suburban places connected the drainage of the houses with the Metropolitan main drainage.

Mr. Lovick said the Board would summon them all, and press for penalties in every case.

Mr. D'Eyncourt said it was a hard case for the inhabitants of Willesden; but their remedy would be to get an Act of Parliament if they wished to get their drainage removed by the main sewers vested in the Board of Works. Defendants had contravened the statute, and he would inflict the mitigated penalty of 5*l.*

HERNE BAY PIER.

SIR,—It would be desirable to have a printed list of the directors, or mis-directors, of this undertaking, and to determine as to their "legal liability" to keep the pier in proper repair.

Is the Board of Admiralty or Trinity Board charged with looking after such structures and exercising a proper surveillance? Surely a notice to repair should have emanated from one of those bodies; and the directors should not have been permitted to board in and shut up this pier to the inhabitants of Herne Bay and the public in general, as they have done for *many years* past, to the infinite loss of both.

PAULATIM.

ARCHITECTURAL PUBLICATION SOCIETY.

THE annual general meeting of the subscribers of this society was held at the House in Conduit-street on the 27th ult., Mr. Horace Jones in the chair.

Mr. Arthur Cates, the honorary secretary, read the following report:—

The past year has been devoted by the committee to the completion of the issue for the 17th year, 1866, and the second part for that year is now in course of distribution to the subscribers. This part continues the Text of the Dictionary as far as the article "Lead," the letter K being therein completed, and much progress made with the letter L,—a further considerable portion of which letter is now in type. On examination of this part, it will be observed that many of the articles have extended to a considerable length, arising either from the importance of the subject, or from the experience and knowledge of the writer having enabled him to give it fuller development than had at first been considered necessary. As expressed in a paragraph of a former report, "it is this freshness of information which has placed the Dictionary in its high position, and precludes all opportunity for any one to assert that the text is a mere compilation from preceding works of a similar nature."

In confirmation of the position which the committee again with pleasure confidently assert to have been attained by the work they refer with satisfaction to letters lately received from M. Cesar Daly, the learned editor of the *Revue Général de l'Architecture*, and from M. Ernest Vinet, the librarian of the "Ecole Imperiale des Beaux Arts," at Paris, which satisfy them that although the number of foreign subscribers is but few, those copies which have reached Paris have attracted well-merited attention, and that the work has made for itself a reputation in highly informed and very critical circles. M. Daly announces his intention of noticing "The Dictionary" in the *Revue*,—"*Avec tous les éloges que mérite un ouvrage aussi intéressant que bien fait*," while M. Vinet says:—

"*Je tien essentiellement à enrichir une collection que j'ai formée des plus beaux ouvrages qui se publient à l'étranger, et le Dictionnaire des Architectes Anglais est du nombre. Acquérir ce remarquable ouvrage est difficile; il n'est pas dans le commerce, et quand il se vend c'est à un prix très élevé.*"

It had been the intention of the committee to have during the year issued a part of illustrations with text,

but various obstacles prevented the realization of this wish: not the least has been the difficulty which exists in procuring suitable drawings and sketches to form illustrations. This may arise from the fact of the student now relying much on the subjects produced by photography rather than on the work of his own pencil, and that many of the best collections of sketches are now reserved for reproduction in the illustrated sketch-books of architectural societies. This difficulty, and the pressing engagements of the examiner of the illustrations, have prevented the issue of the plates; but a series is now in preparation which will, it is hoped, shortly be ready for issue. The completion of the letter L will enable the committee to issue a title-page and table of contents for the binding of volume iv. of "The Dictionary," comprising the letters H, I, J, K, and L, and thus place that portion of the work in a more available form.

The committee much regret that the munificent offer of Mr. T. H. Wyatt, made in 1866, to contribute 100*l.* towards the funds of the society, has not led to the example being followed; but however desirable it may be thus to obtain funds to hasten the progress of "The Dictionary," the committee would prefer to rely on the individual exertions of the subscribers to extend the list of members, and thus increase the income at the disposal of the executive. The expenses of management are nearly the same for a small or a large income; and the addition of a number of subscribers would enable the committee to increase the quantity of matter issued in each part, and thus expedite the work.

The assistance received from the general body of subscribers (with some remarkable exceptions), does not encourage the committee to anticipate much aid in this direction, but they would observe that a proposal is now under consideration, by which it is suggested that by an active and simultaneous exertion on the part of the present subscribers, which would result in the addition of one half to their number, it would be possible so to arrange the funds which would thus be placed at the disposal of the committee as to secure the completion of the text, without further call on the subscribers, whose payments for past years would probably cover all future expenses, or nearly so.

Considering the prosperous state of the architectural profession, and the considerable increase made in its numbers during the last few years, this addition to the numbers of the subscribers ought to be readily obtained, and if encouraged to do so by the support of the general body of subscribers, the committee will endeavour to mature the scheme, and submit it for consideration.

The audited balance-sheets show a total receipt for the seventeenth year, 1866, of 432*l.* 0s. 10d., and a total expenditure of 398*l.* 7s. 8d., leaving a balance in hand of 33*l.* 13s. 2d., to be appropriated to meet outstanding liabilities for that year; while for the eighteenth year, 1867, 178*l.* 10s. has been received, and 52*l.* 2s. 10d. has been expended, the balance, 126*l.* 7s. 2d. being available towards the cost of the publications for that year now in hand.

In the discussion which followed, the accounts and balance-sheets were subjected to close scrutiny, and the explanations afforded by the secretary having evidenced the satisfactory financial position of the Society, the progress of the "Dictionary" and probability of its early completion were discussed, the chairman, Professor Donaldson, Messrs. C. C. Nelson, O. Hansard, T. M. Rickman, and others, taking part. The statement made by the secretary, in reply to the inquiries addressed to him, showed that the only element required to ensure the speedy completion of the "Dictionary," was the immediate accession of a sufficient number of new subscribers to place an ample capital at the disposal of the committee. The individual interest of each subscriber was shown to be the introduction of new members, to meet whose demands the committee had available a stock of the publications of the past years sufficient, if all disposed of, to supply nearly all the capital needed for the completion of the "Dictionary of Architecture."

The report being thereon adopted, it was moved and carried, that in order to economise the funds, the printing and circulation of the report and accounts be discontinued.

Votes of thanks to the officers and chairman closed the proceedings.

ARCHITECTURAL SOCIETIES.

The Sheffield Architectural and Archæological Society.—A number of members of this society, together with several ladies, have made an agreeable excursion into Derbyshire. Starting from the Sheffield School of Art, they drove to Padley Wood, near Grindleford-bridge, where the whole party alighted, and crossed the fields to the site of the ancient Manor House of the Padleys, Eyres, and Fitzherberts. The chapel, now the only part remaining of this once stately mansion, was inspected, and a paper on it was read by the Rev. John Stacye, M.A. The visitors next crossed Burbage Brook by a rustic bridge, and after a scramble over the rugged moorland, came by way of Booth's edge to "Higgaw Tor," which was scaled, even by the ladies. Descending on the south side, the famous "Caerswark," or "Carlswork," was next visited, and here, surrounded by the natural and artificial fortifications of this singular stronghold of the Ancient Britons, the party again listened to Mr. Stacye's notes; after which they adjourned to Fox House.

Leicester Architectural and Archæological Society.—At a meeting of this Society, held in the Town Library, Guildhall, Leicester, the Rev. J. H. Hill in the chair, a paper, contributed by Mr. Vincent Wing, on Buckminster Church, was read; after which Mr. James Thompson (local secretary for the Society of Antiquaries for Leicestershire) read an account of a recent visit to Silchester.

Durham and Northumberland Architectural and Archæological Society.—The first general meeting of the members of this society was held on the 18th ult. at Chester-le-Street and Lumley Castle. The party started from Durham about ten o'clock in the morning in conveyances for Chester-le-Street, where they arrived about eleven o'clock. After inspecting the parish church at Chester-le-Street, the company assembled in the churchyard, when the Rev. W. Featherstonehaugh read a paper on Roman Chester-le-Street. In the discussion which followed, the Rev. Mr. Greenwell expressed his regret that in the restoration of Chester-le-Street old church so little regard had been paid to retain many of the ancient architectural features of the venerable church. Lumley Castle was afterwards visited, when a paper was read by Mr. Longstaffe, "On the Lords of Lumley."

Oxford Architectural and Historical Society.—A meeting of this society was held in the Taylor Building on May 20. A lecture on "Monasticism" was given by Mr. Charles Appleton, M.A., who traced its history and described the various forms which it had assumed at different ages, and discussed the views which had been held by recent historical writers and philosophers on the subject. The lecture was followed by some remarks on "The Recent Discovery of Wall-paintings on the Apse of Checkendon Church," by Mr. E. G. Bruton. The church is one of those rare examples of an original apsidal eastern end, and it was probably built early in the twelfth century. Mr. Bruton described the steps by which the paintings were discovered, and his reasons for thinking they were painted shortly after the erection of the church. When complete they consisted of the twelve Apostles, equally divided, and ranged on either side of the walls, north and south of the east window; but the southern half had been reduced to three or part of four figures in the fifteenth century, by the insertion of a window. Some parts of the figure of our Saviour, seated on a throne, with both hands raised in the act of benediction, were discovered on the vault, immediately over the east window. The figures of St. Peter and St. Paul were arranged north and south of the east window, and were distinguished by being placed in panels or niches, while the others were not so separated; and to these saints the church is dedicated.

DAMAGE DURING THE THUNDERSTORM.

THE recent lightning caused great damage to house property in the metropolis, and affected the telegraph wires to a remarkable extent.

The Victoria Tower of the Houses of Parliament was struck by lightning. The House of Lords was sitting at the time for the purpose of hearing appeals. It was ascertained, however, that no material damage had been sustained.

At Brompton, Little Chelsea, and between the Fulham-road and South Kensington, at which places deep cuttings have been made for the works of the Metropolitan Railway Extension and new branch lines, the torrents of rain that fell inundated the works to the depth of 10 ft., notwithstanding that the contractors had wooden shoots to convey water across the cuttings and out of the tunnels. It is feared that some of the new brickwork, which is scarcely dry, will require to be rebuilt.

It is said that during the storm there was a fall of meteoric stones.

A frightful explosion took place at a fog-signal manufactory in Cherry-lane, Bordesley-green, Birmingham. The result was the almost entire destruction of the place in which the works were carried on, and two young women employed there were burnt to death, and four others so severely injured that several, if not all of them, have since died. The damage to the works is estimated at nearly 1,000*l.*

Morville Church, in Shropshire, was struck by lightning during the storm, and sustained considerable damage. The electric force first struck the south-west pinnacle of the tower, breaking it in pieces, and scattering the fragments of stone in all directions. One piece, weighing 20 lb., was hurled the full length of the church, and fell upon the roof at the end of the nave, breaking the tiles.

A school was struck by lightning at Furze-hill, Brighton. The building is detached, and has two chimney stacks on the western side. Upon one of these is a lightning conductor, and that one escaped, but the lightning struck the other stack, a few feet off. It carried away four long and heavy zinc flues from the top of the stack, and tore off the slates in two places on the roof. Descending one of the flues, it tore out a register stove and displaced a mantel-piece in an upper room. It went as far as the drawing-room grate, where it put the fender on one side, and threw the fire-irons out on to the floor. The clerks in the telegraph office at the Brighton railway station were compelled to leave the place. One of the metropolitan police ventured to enter the office, but was met by a flash of electricity passing from one instrument to another. He was partially stunned and temporarily blinded, and did not recover for a considerable time.

Illinois papers have accounts of great devastation, with loss of life, occasioned by a recent storm there. At Shanghai a church was destroyed by lightning during divine service. The hail and wind had broken in the window lights, and torn out the windows, sashes and all. Two persons who had succeeded in getting out were instantly killed. The building reeled like a drunken man, but no one else could get out. Despair was depicted upon every countenance. Suddenly the crash came, and with a deafening sound mingled with the shrieks of the pent-up people; timbers, scantling and all, came down with a sudden crash upon the heads of the congregation. Some had skulls broken; others, arms; others received internal injuries from which they can never recover. Nearly all were more or less injured. A tornado has also occurred in another part of North America, and a severe hurricane in the Sandwich Islands.

DEBATE AS TO SITE OF THE NEW LAW COURTS.

ON a motion for the adjournment of the House of Commons, Mr. B. Cochrane called attention to the site of the New Law Courts, and observed that the subject was one of great importance, involving as it did an outlay of between two and three millions of money. The frontage to the Strand was only 700 ft., and the depth did not exceed 550 ft. An additional frontage of 100 ft. was required. The site was surrounded by most miserable streets, and proper approaches could not be made for less than 1,000,000*l.*, in addition to the estimated cost of 2,000,000*l.* for the buildings. Now, what was the case with respect to the Thames Embankment? Between King's College, adjoining Somerset House, and the Temple, a river frontage might be obtained of 1,000 ft. with a depth of 700 ft. That site, which was perhaps unsurpassed in Europe, would afford sufficient space to accommodate the courts most advantageously. The purchase of that site might be effected for 1,000,000*l.*, and the approaches to it were already made.

Mr. M. Chambers said he had received information from a man of great experience that the approaches to the Courts would cost half as much as the sum expended for the acquisition of the site. Further, the buildings on the west and the north, which were of the worst possible description, would have to be cleared away; for, if allowed to remain, they would be a disgrace to the new courts. The buildings on the east, from Bell-yard to Chancery-lane, would also have to be removed, otherwise they would not be able to get to the Courts from Holborn. In the plans proposed to be adopted,—the internal by one architect and the external by another,—he found in the former that their lordships the judges, the counsel, suitors, jurors, and witnesses, would have to ascend to the courts, which would be placed as high as the House of Commons; but how they would be able to mount so high he did not know, except they adopted those things called "lifts." It was desirable, before they proceeded further, to obtain from the authorities information of the cost of the present site, and how much it would sell for if thrown into the market next year, or in the next two or three years. He quite agreed that they might dispose of the present site for at least the amount they had given for

it; but they might, in a few years, when they had constructed the Courts on the Embankment, obtain a much larger price for it.

Mr. Cowper said the Embankment site might be a better one on purely æsthetic grounds, but upon those of economy and convenience the present site would be far preferable. The present site was equi-distant from both Lincoln's-inn and the Temple. The proposed site on the Embankment would cost at least twice as much as the site purchased, for the houses in Norfolk and Arundel streets would have to be bought, and, being of a better description, a large sum would have to be paid for them. He knew that some architects had stated that the space on the Strand site would not be sufficient; but that point would be determined when they knew how much room the Government would require for the accommodation to be afforded. He believed the space would be found to be amply sufficient, and, therefore, no time should be lost in appointing an architect, and commencing the works.

Sir G. Bowyer thought it wrong to proceed with the new building until they had the report of the Judicature Commission, and knew what courts would require accommodation.

Lord J. Manners said that the question of site had been settled years since, and that not by one but by repeated Acts of Parliament. The purchase of the land was virtually completed, and, therefore, he could not agree in raising the whole question of site again. The total cost of the ground would be 896,000*l.*; but to fix what it might be worth in ten years would be to make the wildest of estimates. It had been said that inconvenience would arise from the difference of level between Carey-street and the Strand; but, if he was not mistaken, there would be a much greater difference of level between the Strand and the Embankment. Carey-street would be most convenient to suitors, and, besides, was close to the Record Office, which had been built, at an expense of 200,000*l.*, at the back of Chancery-lane. The land purchased amounted to seven acres,—quite sufficient, in his judgment, for the erection of all our law courts.

SURVEYORSHIP OF GRAY'S-INN.

THE Benchers of the Honourable Society of Gray's Inn have elected as their Surveyor Mr. Lewis H. Isaacs, of 3, Verulam-buildings. Mr. Isaacs is Surveyor to the Holborn District Board of Works. There were fourteen candidates for the appointment.

COMPETITIONS.

Monmouth.—The Monmouth Board of Guardians, at an adjourned meeting on the 16th ult., selected a design the joint production of Mr. G. C. Haddon, of Hereford, and Mr. F. B. Payton, of Bradford, Yorkshire, submitted in competition, along with fifteen others, for their proposed new workhouse. The site is in the Old Hereford-road, and is described as highly suitable for the purpose to which it is to be devoted. The estimated cost of the new buildings is stated at 6,000*l.*

CHURCH-BUILDING NEWS.

Sneinton (Nottingham).—The new church of St. Matthias, in the rapidly-grown district of Sneinton, has been consecrated. The edifice is erected on land, the gift of Earl Manvers, situated on the left of Carlton-road, on the rise of the Mapperley-hills. The architects were Messrs. Hine & Evans; and the builder Mr. J. E. Hall. It is now more than ten years since plans were prepared for a building with tower and other accessories. After these plans had been approved by the Incorporated Society, it was discovered that the committee were more than 1,000*l.* short of the sum required to carry them out, and it then became a question whether the work should be further delayed, or whether the architect (Mr. Hine) should be requested to furnish plans by which the requisite number of sittings (700) could be obtained at a cost of 3,000*l.* The latter course was adopted. Externally the building presents nothing very remarkable. The edifice consists of a nave, 67 ft. long and 48 ft. wide, with open-timbered roof, the ridge of which is nearly 50 ft. from the floor; a chancel, with circular apse of equal height, 32 ft. long and 20 ft. wide; and chancel aisles on either side, out of which a vestry and organ-chamber are partitioned off with open screens; and a south porch. The division between the nave and the chancel, and the chancel and the chancel aisles, is effected by a triple arcade, with two stone columns, in one of which the ceremonial stone forms the base. A fourth arch, rising to a height of 35 ft., divides the chancel from the apse. The walls throughout are built of Bulwell stone and lined with red brick, interspersed with black brick bands and panellings. The building will provide for upwards of 700 on the floor, and the total cost, including fences, fittings, and architect's expenses, is about 3,000*l.* In addition to lancet windows at either end, the light is admitted through a range of openings formed in the roof. The gas-fittings have been executed by Mr. Rhodes.

Reading.—The restoration of St. Lawrence's Church has been completed, and the edifice re-opened. The roofs have been repaired, the whitewash coatings of centuries removed, all the interior stone-work restored, and the plastering redone. The nave roof has been opened and stained, and the panelling of the aisle ceiling restored. The old flat ceiling of St. John's Chapel has given way to a wagon-headed roof, to admit of the organ being placed in that part of the church. The benches, screens, and other joiner's works have been executed in oak, and the aisles are paved with Peak's tiles in simple geometric patterns. One of the south windows has been filled with stained glass by Messrs. O'Connor, of London. The subject is "The Resurrection of the Just." Various other improvements have been effected. The contract for the restoration works was taken by Mr. Henry Lovatt, of Wolverhampton, and carried out under his foreman, Mr. Henry Charlton. The works have cost about 4,000*l.* Mr. Joseph Morris was the architect employed.——The vestry of St. Mary's parish have resolved to repair the roof of the nave of St. Mary's Church, on a report by Messrs. J. B. Clacy & Son, at a cost of 400*l.*, to be raised by voluntary subscriptions.

Aylesbury.—From a statement issued by Archdeacon Bickersteth and the churchwardens of St. Mary's parish church it appears that 1,989*l.* have been expended on the restorations at the present time, and that a sum of 400*l.* requires to be raised for further works, exclusive of the chancel. The cost of restoring the tower and spire was 1,029*l.*, in place of 750*l.*, the timbers having been more seriously decayed than was anticipated.

Moulton.—The parish church at Moulton, in the county of Lincoln, has just been re-opened by the Lord Bishop of the diocese, after having undergone considerable repairs and restoration. It is one of those large churches for which the county is famous, and consists of an Early pointed nave, with north and south aisles, 92 ft. by 51 ft., a perpendicular chancel, 48 ft. by 20 ft., and western tower and spire, about 170 ft. in height. A new south porch takes the place of a comparatively modern one of poor design, and a vestry and organ-chamber have been added at the east end of the north aisle. The new seats and doors are of English oak; the walls and windows have been restored, and the roofs repaired and recovered with lead. The cost of the work has been upwards of 3,000*l.*, and to meet this outlay the parish have agreed to borrow 2,000*l.*, the remainder being raised by subscriptions. The whole of the works have been executed by Mr. W. Brown, of Lynn, under the direction of the architect, Mr. William Smith, of John-street, Adelphi.

Withersfield (Suffolk).—The church here has been re-opened after restoration. It was decided to rebuild the chancel at a cost of 500*l.*, and enlarge the church by an additional aisle on the south side, and plans and specifications having been prepared by Messrs. Clark & Holland, of Newmarket, architects, the works were undertaken by Messrs. Mason & Green, of Haverhill, builders, and the whole of the repairs have been carried out. The chancel is entirely new, and built with flints. The windows are fitted with coloured glass. The roof is built of open timber work, stained and varnished. The quoins, windows, and dressings are of Bath stone, and the floor is paved with Maw's encaustic tiles, in black, red, and buff. Additional sittings are also erected. The additions to the church consist of a south aisle and porch, agreeing in style with the north aisle, and built with flint, to correspond with the exterior of the chancel. There is additional accommodation of upwards of 100 free sittings. The piers and arches to the nave are made of Bath stone, and the new aisle windows are filled with cathedral green tinted glass. All the old walls and stonework have been cleared of their old dressings and replastered, and the whole cost of the work is upwards of 1,200*l.*

Cramlington.—The new church of St. Nicholas has been consecrated. The style of architecture adopted by the architects, Messrs. Austin & Johnson, is a severe type of Early Pointed, the details partaking much of the French character. The church consists of a chancel, 29 ft. by 20 ft.; nave, 63 ft. by 22 ft. 6 in.; north and south aisles, porch, vestry, and organ chamber; and a western tower, 72 ft. high. The church will seat 412 persons. The chancel has a three-light window, placed high up in the east wall, and filled with stained glass (by Wailes) representing the Crucifixion, the Resurrection, and the Ascension. Underneath this, there is a reredos, carved, with a central cross, surrounded by the Evangelistic symbols. The church is built entirely of finished stone internally, no plaster being used on the walls. There are oak stalls and sedilia in the chancel, which is paved with encaustic tiles. On each side of the nave there is a clearstory of sexfoiled circles. One of these is filled with stained glass, representing the Prophet Jeremiah. The window is the work of Mr. Cottier, of Glasgow. The roofs are of open timber, and the seats are low and open, and darkly stained. Besides the east window, the two side windows of the chancel and a number of the lancet windows of the aisles have been filled by Mr. Wailes; the two western windows of the aisles by Messrs. Clayton & Bell; and two lancets in the south aisle by Mr. Cottier. The last represent the parable of the Wise and Foolish Virgins. Externally, the church derives dignity from the tower, which rises considerably above the nave roof. This is of low pitch, forming a contrast with the more acutely pointed chancel roof. The general contractors for the work were Messrs. Waterson & Stafford, of Morpeth. Messrs. Walker & Emley, of Newcastle, furnished the iron railing; Mr. Gibson has done the painting, and Mr. Bailey, of Newcastle, the plumbing. The total cost of the structure has been about 3,000*l.*

DISSENTING CHURCH-BUILDING NEWS.

Manchester.—The foundation-stone of a new Wesleyan chapel has been laid in Sussex-street, Broughton-road. The edifice is built in the Italian style of architecture, the exterior being pressed bricks, with facing of Yorkshire stone. The length is 79 ft., and the breadth 52 ft. 6 in. In the rear of the building are two class-rooms and the minister's vestry. The chapel will be heated with hot water. The pews will be made with inclined backs. The windows will be finished internally with moulded archivolt imposts. The front will consist of coupled door-cases, with pilasters and centre column, having carved spandrels and ornamental keys. The entablature will be surmounted by panelled pedestals, supporting the pilasters and columns of the gallery windows, which will have Corinthian capitals. The staircase and side windows are of a plainer description. The angles of the chapel have French rusticated pilasters. The front will be crowned by a pediment, with cornice, containing a ventilator and the inscription stone. The chapel will seat 800 persons, and cost about 5,000*l.* Mr. William Waddington, of Padiham, Burnley, is the architect; and Mr. Mark Foggett, of Cheetham, contractor.

Bloxham.—The new Wesleyan chapel here has been opened. It is a small Gothic edifice, built of brick, with bands of Bath stone running along the walls. The window dressings are also of Bath stone, and the gables are finished with copings of the same material. The chapel is entered by a porch, the floor of which is laid with Staffordshire pavement. The roof is an open one, supported by curved ribs and stained woodwork. At the right-hand side of the building is the gallery, which is approached by a separate door. Under the gallery is the school-room, capable of accommodating 100 scholars. There are three arches, composed of Parian cement, in the interior of the chapel—one over the front of the gallery, and one over each of the two large windows,—the panes of which are of ground glass. The building will accommodate 300 people, and was designed by Mr. Thomas

Garrett, the town surveyor of Banbury, who, with his brother, Mr. William Garrett, of Bloxham, made a gift of the site to the congregation. The entire work in connexion with the chapel has been executed by Messrs. Orchard, of Banbury. The cost, exclusive of the site, will be about 600*l*.

Stockport.—New Mount Tabor (Methodist) Chapel, Wellington-road South, has been opened. The Classic style has been adopted in the designs. The building is of brick, with stone dressings; the whole front elevation, however, is faced with Darley Dale stone. A Corinthian portico of four columns, approached by a flight of steps, extending the whole width of the building, forms the chief feature of the design. Within the portico are three principal entrances to the chapel. On each side of the portico are two tiers of windows, affording light to the staircase, and enriched with carved and moulded imposts. The length of the building, internally, is 73 ft., and the breadth 50 ft. A vestibule, entered from the portico, extends the whole width of the front, on ground-floor, having at the ends staircases to the gallery. The vestibule communicates with two inner lobbies, and from thence to the aisles on the ground-floor. At the rear of the building, on the ground-floor, two large vestries, minister's vestry, and a staircase for the children, communicating with basement, are arranged. The gallery is the whole length of the chapel, each side, extending over the vestibule in front, and the vestries at the back. The entire height of the chapel, from the ground-floor to the ceiling, is 34 ft. The accommodation is for about 900 persons. Beneath the chapel, on the basement, there is a school-room, 50 ft. by 44 ft., and 14 ft. high. A kitchen, store-rooms, rooms for warming apparatus, &c., are also provided on the basement. Messrs. Longson, builders, of this town, were the contractors for the whole of the works; and Mr. William Hill, of Leeds, was the architect. The lighting and ventilation have been executed by Mr. Harlow, Heaton Norris, under the instructions of Mr. Jacques, the gas-engineer, in this borough. The painting, staining, and varnishing have been done by Mr. Robert Chetham.

STAINED GLASS.

St. Mary's, Ealing.—The series of apse windows begun in 1865 by Mr. Boddington, who designed and presented them, is now completed, and they are just put up in the chancel of this church. They do not all appear from the body of the church, it being necessary to stand in the chancel to see the whole at once. The mosaic principle, in contradistinction to the mode of treatment of glass-painting of the Munich school, has been adhered to by Mr. Boddington. By the absence of all ornamentation he wishes to give all the importance to the subject, and by the pictorial representation of different events in the life of our Lord to address so many lessons to the hearts of the beholders. The subjects are selected so as to lead through a succession of scenes, from the annunciation of the birth of Christ to the Ascension, ending with the death of the first martyr, St. Stephen, and the signal conversion of St. Paul. These windows have been presented to the church by Mr. Boddington, we hear, as a thank offering for the success attending the reconstruction of St. Mary's. The other windows, now in progress by Mr. Boddington, it is hoped will ere long be completed: one of David, over the organ arch, and the other John the Baptist, over the entrance to the baptistery, are already announced. Two new windows have recently been put up in the church—the parable of the Good Samaritan, presented by Mrs. Atkinson, and four subjects from the Old Testament placed in the ambulatory by Miss Relton, by Messrs. Clayton & Bell. All Mr. Boddington's designs are executed by Messrs. Heaton, Butler, & Bayne. The apse windows represent the Annunciation, the Visitation, the Birth, the Presentation, the Flight into Egypt, the Return to Nazareth, the Baptism, the Temptation, the Call of Peter and Andrew, the Well of Samaria, the Entry into Jerusalem, the Last Supper, the Agony in the Garden, the Betrayal by Judas, the Foot of the Cross, the Descent from the Cross, the Three Marys, the Sepulchre, the Angel at the Sepulchre, Christ appearing to Mary Magdalene, Christ joining the Disciples going to Emmaus, Christ appearing to the Holy Women, Christ appearing to St. Thomas, Christ's Charge to Peter, the Ascension, the Apostles' return to Jerusalem, Matthias chosen to replace Judas, the Holy Ghost descending at Pentecost, the Stoning of St. Stephen, the Conversion of St. Paul; in the traceries above, Angel in Adoration, the Virgin Mary, Christ Risen, St. John the Evangelist, Angel in Adoration.

All Saints' Church, Chichester.—The east window of this church, which is composed of three lancets, has just been filled with stained glass in memory of the late Alderman Gruggen, of Chichester, banker. The subjects are the Agony in the Garden, the Betrayal, Scourging, Bearing the Cross, Crucifixion, Entombment, Resurrection, Incredulity of St. Thomas, and the Ascension. The arrangement of the window is chiefly medallions on a grisaille background: the subject of the Crucifixion occupies a prominent part of the centre opening. At the top of each lancet is an angel bearing a scroll with a text. The window was designed and executed by Mr. Baguley, of Newcastle-upon-Tyne, at the cost of 100*l*.

Stretford Church.—A stained-glass window has been placed in this church, in memory of the late rector, the Rev. W. E. Brendon. The subject picture is the Resurrection of our Lord, framed by canopy work and foliated ornament, composed of coloured glass, worked in the manner prevailing in the Early Gothic style. The window and brass are from the establishment of Messrs. R. B. Edmundson & Son, of Manchester.

PATENTS CONNECTED WITH BUILDING.

WATER-CLOSETS AND SINKS.—*J. G. Jennings.* Dated May 14, 1867.—According to this invention the patentee arranges water-closets in such manner that, whilst the excrementitious matters which the basin may receive, together with the small quantity of water which the basin holds, are discharged into a receiver, so as to be applicable for use as a manure, the comparatively large quantities of water which are used to scour the basin are kept out of this receiver and directed away into a sewer or otherwise, as may be desired, but without mixing with and diluting the excrementitious matter, which is consequently discharged almost in an undiluted state into the receiver, whatever be the quantity of water used to cleanse the pan. For this purpose the patentee employs a pan with a valve at the bottom, and when this valve is opened the matters in the pan press into the manure receiver. The same act of opening the valve of the pan also in the usual way opens a valve for the supply of the scouring water, and this water-supply valve is so arranged, as is well understood, as to remain open for a regulated time. The scouring water is, however, prevented from passing into the pan so long as the valve of the pan is closed. The scouring water is admitted and the excess passes away by a side opening from the pan, leaving therein only a small quantity of water, say a depth of half an inch, but more or less as may be desired, and sufficient to prevent the adhesion of soil.

PIPES FOR VENTILATING, HEATING, AND VAPORISING HOTHOUSES, &c.—*W. Taylor.* Dated July 20, 1867.—The patentee claims, first, the application of chambers or passages to pipes for receiving hot water, &c., so that such chamber or passage may receive water or other liquid to be evaporated whilst they at the same time act as conduit for the passage of air for ventilation, and thereby moisten as well as heat the air so supplied for ventilation, whereby hothouses, malthouses, and other buildings or residences, may be ventilated, heated, and vaporized, as described. Secondly, the method of forming the joints of pipes used in heating hothouses, malthouses, and other buildings and residences, as described.

VENTILATORS.—*J. Hooper.* Dated July 20, 1867.—The patentee claims constructing and arranging or combining the parts of a ventilator, substantially as described and illustrated, whereby a series of flaps or doors covering a corresponding number of openings in the body of the ventilator may be simultaneously raised or simultaneously lowered, so as to open or close to the required degree the said openings in the ventilator.

CONSTRUCTION OF THE ROOFS OF HORTICULTURAL AND OTHER BUILDINGS AND STRUCTURES. *W. Simpson & W. Howit.* Dated July 24, 1867. The patentees claim constructing the principals of the roofs of horticultural and other buildings and structures hollow instead of solid, and of tubes, or pipes and sockets, either separately or in combination, with longitudinal pipes, rods, or bars, as described.

MOULDING CLAY FOR MAKING BRICKS, TILES, &c.—*C. H. Murray.* Dated July 25, 1867.—This invention consists in constructing the dies or apertures in brickmaking machines through which the plastic material is delivered with movable hollow boxes or vessels provided with perforated sides, and supplied with any suitable lubricant, which, by exuding through the perforations in the boxes, will lubricate the desired parts.

Miscellanea.

HARVESTING OF CORN IN WET WEATHER.—The Council of the Society of Arts having offered the gold medal of the Society and a prize of fifty guineas, for the best essay on the harvesting of corn in wet seasons, received twenty essays, and the gentlemen acting as judges have unanimously recommended the Council to award the prize to Mr. W. A. Gibbs, of Gillwell-park, Essex. This award has accordingly been made.

NEW WORKHOUSE FOR CLERKENWELL UNION.—The local Guardians have resolved that a workhouse, capable of holding at least 500 persons, be constructed on the Guardians' Freehold estate at Highgate, and that a committee of seven guardians be appointed to visit the modern-built workhouses of the metropolis with a view to the adoption of the most recent improvements in the construction of the Clerkenwell workhouse.

ITALIAN OPERA, COVENT GARDEN.—Mdlle. Pauline Lucca and Mdlle. Patti continue to reign here by turns, and with undeviating success, Signor Mario assisting each in turn. In "Les Huguenots," which will be presented again on Monday evening next, Mdlle. Lucca particularly distinguished herself last week; and the opera, as a whole, was given with remarkable vigour and perfectness. We know of no other work of the lyric stage that so completely fills the mind of the spectator and listener.

WAGES AND LABOUR.—The executive committee of the Social Science Association have resolved to invite the association to appoint a general committee for the purpose of spreading information as to the natural laws regulating the rate of wages and the supply and demand for labour. Mr. Overend, Q.C., has stated to the executive committee that, in his opinion, "almost all the crimes in trade matters originate in ignorance." It is this ignorance, wherever existing, which the committee are desirous to remove. A main object in forming the proposed general committee is to present to employers, to the working classes, and to the country generally, a list of names calculated to inspire confidence in the disinterestedness of the promoters of the object in view, and in their ability to carry on the work wisely and efficiently; but the general committee will not be called upon for more than superintendence, since, for active exertion, it is intended to have an executive committee. Upwards of forty gentlemen have already expressed their willingness to serve on the general committee.

APPOINTMENT OF ADDITIONAL PATENT LAW COMMISSIONERS.—A meeting of the Delegates' Invention Right Committee, consisting of delegates from the Inventors' Institute; the Working Men's Technical Education Committee; the Workmen's International Exhibition Committee; the Foremen Engineers' Association; the Metropolitan Working Men's Clubs' and Institutes' Union; and the Public Museums' and Free Libraries' Association, representing in the aggregate upwards of 200,000 persons, has been held at the Offices of the *Scientific Review*, Cockspur-street, to consider the determination recently arrived at by the Commissioners of Patents to appoint three additional commissioners. Much dissatisfaction was expressed at the constitution of the existing commission, to the inefficient action of which body the chief evils of the present objectionable Patent Law system were ascribed. The course adopted by the existing commissioners, in now seeking to appoint three additional commissioners, was strongly condemned by the speakers, as being objectionable and inopportune, especially when it was considered that the whole Patent Law question must shortly be dealt with by Parliament. A resolution to that effect was unanimously passed, and a copy of it was ordered to be forwarded to the commission.

SOCIETY OF ARTS.—On Wednesday evening a *conversazione* was given by this Society at the South Kensington Museum, and Mr. Hawes, the president for the year, and Lord Henry Lennox received a large and fashionable company, amongst whom were many persons eminent in politics, art, and science.

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN AND CLERKS OF WORKS.—The anniversary dinner on behalf of the funds of this Institution, will take place at the Freemasons' Tavern, on Wednesday, June 10th next, when Professor G. G. Scott, will take the chair, and a goodly muster of friends is hoped for.

PARK-LANE.—The committee appointed to consider and report on the crowded condition of Park-lane have agreed to a special report, to the effect that in their opinion the inconvenience at present experienced from the overcrowded state of the traffic would be best obviated by opening up Hamilton-place as a thoroughfare for public traffic, with a width of not less than 60 ft. roadway, to be obtained by removing the houses and other buildings on the eastern side.

A MILL-STONE DRESSING MACHINE.—A trial of a new patent mill stone-dressing machine has been made at Stowmarket. Mr. Jacobsen, a Leith merchant, introduced the invention into this country. While at the last Paris Exhibition, he entered into a negotiation with the patentee, which ended in Mr. Jacobsen and two Edinburgh gentlemen obtaining the use of the patent in Great Britain and Ireland. The invention is simple. It consists of a "black diamond," similar to a glazier's diamond, fixed in a spindle, or small wheel, about 1 in. in diameter, connected with a frame. The millstone to be operated on is laid on its side, and by means of a small belt or cord, adjusted to a shaft of the mill machinery, a rapid revolving motion is given to the diamond-set spindle, which, with its frame, is placed on the stone. A man attends the sharpening machine, and by the hand directs the longitudinal and lateral movements of the diamond in its operations. The fine lines it cuts are, it is said, far more expeditiously and better executed than could be accomplished by the ordinary sharpening by picks, and after a few times sharpening, the stone is brought to a perfectly level face, which is maintained without any trouble, as long as this machine is used. The manual labour connected with the sharpening of the stones is reduced from 8 hours to 1¼ hour per stone, and the saving effected, or profit secured, is stated at upwards of 3*l.* 10s. per week, in every pair of stones, or 182*l.* per annum.

THE NEW RACECOURSE, MANCHESTER.—The lease of the old course at Castle Irwell, which has so long been used as the Manchester racecourse, having expired, its renewal was refused, and a new course was obtained on the left, coming from Manchester, of Regent-road, Salford. The entrances to the course are by way of Cross-lane, and Howard-street, Eccles New-road, and they admit the visitor to a spot at the rear of the grand stand. The extent of the ground is above 100 acres, being 40 acres more than the course previously occupied by the Manchester race committee. The architects of the Grand Stand are Messrs. Bird & Son, of Manchester. The buildings are in the form of a quadrangle, and enclose an area of about an acre, the entrances being from the rear. The principal entrance is by a double porch, from which stairs both on the right and left lead to the spectators' gallery, and there are corridors leading to the paddock. Dining and refreshment rooms and the offices for the stewards and other functionaries, rooms for the jockeys for dressing and weighing, also adjoin the corridors. The gallery of the stand will conveniently accommodate from 2,500 to 2,700 persons, all of whom will be under cover, the whole building being roofed; and there are arrangements for enclosing the front with shutters when the stand is not in use. There will be a stone gallery rising directly from the paddock, which will accommodate 400 spectators. Provision is also made for a second-class stand, which it is calculated will accommodate 4,500 spectators. Beneath the stands are booths, to be let to publicans and vendors of refreshments. There is stabling convenience for eighty horses, in loose boxes and two-stalled stables. The cost of the whole of the works, including the grand stand, is estimated at 40,000*l.* The ground has been laid out by Mr. Dorning, C.E., Manchester; and the work carried out by Mr. Edward Rothwell, of Warrington.

METROPOLIS SUBWAYS BILL.—This Bill has passed through committee in the House of Lords.

FEVER IN PRUSSIA.—In East Prussia typhus has been so destructive that no fewer than twenty physicians have died in attending on patients. The number of other victims is very variously given, and, it seems, will never be correctly ascertained.

MONUMENTAL.—A Poughkeepsie paper, called the *Eagle*, wants the Hudson river lined with colossal statues. It proposes a statue of Hudson at the entrance of the highlands, one of Liberty at Grape Island, one of Washington at West Point, and one of Fulton at Pollipel's Island!

TRIBUTE TO A FOREMAN.—On Saturday last a meeting of the workmen in the employ of Mr. J. H. Parsons, numbering upwards of 150, was held in Castle-street, Leicester-square, to present to W. Wilkins, their late foreman, on his leaving, a testimonial, accompanied with a purse of twenty guineas, as a mark of their esteem for his impartial conduct towards them during a service of nine years.

THE IMPROVEMENTS IN GUILDHALL.—Mr. Kelday, the chairman of the Guildhall Improvements Committee, mentioned at a recent Court of Common Council that the window in the Guildhall, to be presented by the Lancashire committee, would be completed by June 13th, and that arrangements had been made with the Earl of Derby to come and present the window in a formal way to the corporation.

GAS.—The Uckfield Gas Company have declared a dividend of 10 per cent., with a balance of 118*l.* to their reserve fund.——The Lewes Gas Company have agreed to borrow 2,000*l.* for a new gas-holder. A sum of 2,000*l.* has already been expended in the extension of their works. The company divide 10 per cent. dividend, and Mr. R. Crosskey at their meeting said they looked forward to the time when they could reduce the price of gas and yet pay a good dividend.

THE NEW BUILDINGS AT THE CLERKENWELL HOUSE OF DETENTION.—At the Middlesex County Sessions it has been agreed that the sum of 20,000*l.* be granted by the Court, to be raised in the usual manner, towards the cost of erecting the new buildings at the House of Correction at Coldbath-fields, according to the plans sanctioned by the Court at the November Session, 1865, in addition to the sum of 65,000*l.* already granted by the Court for that purpose.

A SILVER COFFIN—GEORGE I.—The *Universal Magazine*, about the best, except the *Gentleman's*, of the last century, in a visit to Hanover, with its "Windsor" Herenhausen, had the following passage:—"The body of George I., who died here, is interred in a *silver*" (doubtless meaning "outer") "coffin, of admirable workmanship." What may be known now of this coffin? In the same it is stated that the number of houses then in Hanover was 1,200; but I am informed by a recent visiting friend, that the population now is above 20,000.—D.

LONDON OMNIBUSES: THREATENED WITHDRAWAL OF THE LARGER ONES.—The public complaints against the chief omnibus company of the metropolis for their bad omnibuses are notorious. With few exceptions the accommodation is so stinted as to be really indecent; and the vehicles are either close and stuffy on the one hand, or on the other are ventilated from wide and gaping apertures behind the horses and drivers, sweeping the foul air from without through the omnibus like wind through a funnel along the heads of the passengers, and causing neuralgic attacks, more especially amongst elderly people, from which they may suffer for weeks from a single exposure to such stupid and ignorant arrangements. There are a few exceptions; some of the omnibuses being large and roomy, as well as more sensibly arranged as to ventilation. The company now threaten to withdraw these few larger 'buses on pretence that the public avoid them,—a very unlikely thing, unless there be some special reason, such as a preference for other companies who have not given cause of offence to the public. The fact of three horses being required for these omnibuses, while the stuffy little herring boxes of the old sort require only two, though carrying not far short of the same number of passengers, seems to be a much more probable explanation of the threatened withdrawal of the only few decent vehicles than the actual avoidance of these latter by the London public.

ROYAL ACADEMY.—At a meeting of Academicians, held on Tuesday evening last, Mr. Henry Weekes, R.A., was elected Professor of Sculpture. At the same time Professor Partridge was re-elected to the Chair of Anatomy.

ARTISANS' AND LABOURERS' DWELLINGS BILL.—The following peers were named as the select committee on this Bill:—The Earl of Malmesbury, the Duke of Somerset, the Duke of Beaufort, the Earl of Derby, the Earl of Shaftesbury, the Earl of Carnarvon, the Earl Cardigan, the Earl of Kimberley, the Bishop of London, the Duke of Argyll, Lord Foley, Lord Portman, Lord Chelmsford, Lord Westbury, Lord Athlumney, and Lord Penrhyn.

STEAM ROLLERS.—The steam roller made by Messrs. Moreland & Son, for use in Hyde Park, has been at work consolidating the new roadway along Park-lane. A top dressing of gravel and sand, or hogging, to bind the broken granite, having been laid, the steam roller went ahead, and did more and better work in half an hour than the two four-horse rollers had done during a whole week. The machine weighs 27 tons, is easily guided, and makes little noise when at work.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At the meeting of the British Archæological Association on Wednesday evening, the 27th ult., some drawings by Mr. Watling from the screens of Suffolk churches, were exhibited. Mr. Greenshield sent a very fine bulla of Pope Nicholas V., found near Glasgow Cathedral. The Rev. J. G. Cumming produced a cast taken from the head of the Bethnal-green beadle's staff and bearing a representation of the Blind Beggar. Mr. Bailey showed a very interesting head of a pastoral staff, found lately in Smithfield; this is most probably of the twelfth century. Mr. Gordon Hills produced the money-box and account-book of the Company of Stationers of Ludlow. The book commenced in 1669, and from the entries and references to a former book, and other matters, it seemed that the Company, which was in fact a trades union, had been incorporated under an Act of the 19th Henry VII., and it was probable the box was as old as this period. Mr. E. Roberts produced a deed of surrender of the time of Charles I., which the jurors of the court had signed by marks similar to masons' marks. Mr. S. Holt exhibited some ear-rings and other matters, taken by himself from a Roman coffin found at Arles. The inscription on the coffin showed that it contained the body of a certain Faustina, who had died on her twentieth birthday, it being also the day of her marriage. One pair of gold ear-rings were of an Etruscan type. Mr. Irving read a paper on the death of the Red Comyn, which led to discussion.

TECHNICAL EDUCATION FOR ENGINEERS.—A paper upon Engineering Education was read by Mr. G. Lauder at a recent meeting of the Liverpool Polytechnic Society. He limited engineering education to that knowledge necessary for a young man to acquire that he may become a skilled engineer, and pointed out the importance of a proper elementary education being enforced before a technical education is commenced, deprecating the introduction of the latter into common schools as a course which would strike at the root of all true education, as it might raise a wonderful superstructure, while it would cause a life-long regret for the want of a proper foundation. Having referred to the importance of the present movement for promoting technical education in this country, and premised that a general education and a workshop education must be the first steps in that direction, the author of the paper proceeded to enumerate the scientific subjects to which a young man destined to become an engineer should direct his attention. A thorough grounding in mathematics was indispensable. He regarded pure mechanism as a connecting link between the geometry of the schoolboy and the mechanics of the man. He considers the manner in which the mechanical sciences are taught in most of our colleges, and treated in most of our scientific books, renders them useless in the education of the engineer; and says that until Rankine's 'Applied Mechanics" was published, in 1858, there was not a book that could be said to be adapted to the requirements of engineers. In conclusion, he referred to the establishment of the Chair of Engineering in Owen's College, Manchester, and to the munificence of Joseph Whitworth in devoting 100,000*l.* to the provision of thirty scholarships.

THE ROYAL HORTICULTURAL SOCIETY.—The great summer flower-show was opened on Tuesday at the Society's grounds, in South Kensington. The display of flowers was remarkably fine.

THE RAILWAY VIADUCT AT RUNCORN.—The girder bridge constructed by the London and North-Western Railway Company across the Mersey, at Runcorn, in order to shorten the route from London to Liverpool, is now near completion. The bridge is built on four buttresses, 167 ft. in height from their foundation, and has three central spans of 305 ft. each. At high-water the space from the water level to the bridge is 75 ft., and at low water 95 ft. Some minor works on the new junction line still remain to be finished.

THE THAMES EMBANKMENT.—In reference to the report that it was not intended to have chains or other means provided for the rescue of persons who might be in danger of drowning along the embankment wall, Mr. Raphael Brandon urges that, if chains were suspended from one ring to the next all along the wall, with a fall that would leave them in reach of a person in, say, three or four feet depth of water, they would at all times of the tide prove a valuable source of safety, and one which it is earnestly to be hoped the Board of Works will supply.

ROSHERVILLE PIER ON FIRE.—Some commotion has been created in Gravesend in consequence of Rosherville Pier suddenly bursting into flames. A lighted fusee is supposed to have been thrown down on the pier, and falling through a crevice in the timbers, set them on fire. The timbers, which were exceedingly dry, and coated with pitch and tar, blazed furiously. Seen from Tilbury half the pier seemed in flames. The pier sustained much damage before the fire was extinguished. Strange to say it is the fourth time this pier has been on fire, the previous fires also all occurring at Whitsuntide.

TUBE CONSTRUCTION.—In reply to some inquirers we are enabled by Messrs. Parr & Strong to say that, in addition to the experiments made in the great hall of the Strand Hotel Company, of which we gave a view, a house, composed of granite-faced tubes, is now being erected under their direction at Bickley (near the station), and the clerk of works has instructions to give access and to supply all information upon the production of private card. The external walls of the ground-floor are composed in this case of tubes, 12 in. long, whilst those of the first-floor are constructed with 9-in. tubes. As a specimen of wharf-walling, we may mention one at Millwall, opposite the Commercial Dock Steam-boat Pier. Here the tubes are also granite-faced.

HANDEL FESTIVAL AT THE CRYSTAL PALACE.—The preparations for this great celebration may now be said to be complete in all respects. The chorus will number in all little short of 3,500. The entire orchestra will consist of 4,000 performers. The preparations for rendering the Great Transept of the Crystal Palace acoustically perfect have been in active progress for many months. The appliances by which this will be accomplished are ready to be fixed in their respective places immediately, and in this respect it may be fairly asserted that a surprise is in store. The Great Transept, the width of which is double the diameter of the dome of St. Paul's, will be converted into one vast concert-hall, enclosed on every side, its enormous arched roof being screened from the sun by external cloth coverings. This great experiment was first suggested in the *Builder* some years ago.

VELOCIPEDES.—The Londoners have not yet adopted our suggestion to make use of *self*-acting vehicles, but the velocipede, according to the *Pall Mall Gazette*, is becoming a formidable rival to the horse in Paris. One velocipedist (it has been found necessary to invent the word) rolled down the Champs Elysées the other day in an "Américaine," drawn by two velocipedes, on which were mounted two postilions, or jockies. M. de Visin, a distinguished equestrian who rode over the steeple chase course of the Bois de Boulogne a fortnight ago without touching his horse's bridle, has made a match with Prince Achille Murat, in which M. de Visin on a velocipede backs himself against the Prince on horseback. M. de Visin, a few weeks ago, undertook to travel on a velocipede from Angers to Paris, and actually went as far as Tours, a distance of about fifty-four miles, when the machine broke.

THE ENCLOSURE OF TOOTING COMMON.—A meeting has been held at Tooting, "to assert and protect the rights of the commoners and parishioners over the common, and to ascertain if the recent inclosure by the lord of the manor can be justified." The rector of the parish, the Rev. Mr. Congreve, presided, and there was a very large attendance. Resolutions were passed in accordance with the objects of the meeting, and a committee was appointed to carry them out.

ROMAN REMAINS AT PAPCASTLE.—During the last six months Papcastle has been the scene of a considerable amount of excavations, done for the sewerage and waterworks, in the course of which very numerous relics of the Roman period have turned up, many of the smaller and more interesting of which were purchased and preserved by Mr. Henry T. Wake, of Cockermouth. Among these were a quantity of leather, chiefly parts of shoes, one of which was a sole covered with very large-headed nails; fragments of glass; a steel awl; a steel punch, &c. A great quantity of oak timber was met with, in beams and boards.

FIREPROOF CONSTRUCTION AT COMPTON HOUSE, LIVERPOOL.—This large building is divided into five fireproof compartments. The brick walls forming each division are pierced with windows, for the purpose of lighting the bedrooms, and those windows are provided with Clark's steel shutters; so that if a fire were to break out in any one division the adjoining divisions would be safe, in consequence of the protection of the shutters. The ceilings of the shop are also fireproof, so that the domestic part of the premises, which is above, together with the shop which is below, are considered safe from fires which may happen in either place. The beams that sustain the flooring are of iron, and also the joists, which are placed 2 ft. apart, and filled in with concrete to the depth of the joists, 9 in., on Fox & Barrett's principle. In the event of a fire occurring in the shop security is given for the safe exit of every resident to the staircases, of which there are three, all of stone. In each staircase there is a hydrant, and upon each floor a hose, the length of each of which would be about 200 ft. There is now forming a fire brigade of 200 young men employed on the premises.

FALL OF HOUSES.—At Manchester some time ago a fire occurred on premises adjoining the Millstone Inn, Thomas-street, which caused their being pulled down. While excavating for a foundation, in order to erect a new building, one of the end walls of the inn was so much undermined as to cause it to become unsafe, though evidently unknown to the occupier; and while some fifty or sixty people were in the concert-room, a waiter gave warning that the wall was giving way, and, on examination, it was found that a portion of the cellar wall had fallen. Mr. Lyne, the city surveyor, was sent for, and pronounced the building unsafe for occupation—a fortunate circumstance, as the whole gable fell at twenty minutes after midnight, destroying a considerable quantity of the furniture and stock-in-trade. No personal injury whatever occurred. ——A somewhat singular disaster has occurred at Whitehaven. A short while ago the trustees purchased and removed some dwellings in West Strand, in order to erect apparatus for the sewerage works on the site; and in making the change they seem to have disturbed the foundations of three dwellings, which have since fallen down the embankment. In falling they struck other three houses, which were reduced to a wreck almost as complete as that to which the tumble-down dwellings were in an instant levelled. The wonder is that none of the tenants were killed, because the occurrence was sudden, if not altogether unlooked for. The furniture of the poor people, however, has been destroyed. Men were set to work to prop up other houses that are also endangered.

TENDERS.

For rebuilding foundry, Nos. 195 and 196, Brick-lane, for Messrs. Noakes & Son. Messrs. Tolley & Dale, architects:—

Peters	£900 0 0
Kiddle	889 0 0
Pritchard	855 0 0
Langmead	795 0 0
Marr	669 0 0

For the erection and completion of a row of four cottages, Walthamstow, Essex, for Mrs. Newman. Mr. George F. Payne, architect:—

Vickers & Harding (accepted)	£990 0 0

For alterations to The Fitzroy, Charlotte-street, Fitzroy-square, for Mr. Chamen. Mr. A. E. Gough, architect:—

Keeble	£525 0 0
Perkins	498 0 0

For erecting four dwelling-houses and shops in the Wanstead-road, Essex. Mr. F. G. Widdows, architect:—

Bayes	£4,624 0 0
Patman	4,545 0 0
Ennor	4,393 0 0
Tully	4,343 0 0
Munday & Hutchinson	4,150 0 0
Chessum	4,080 0 0
Ward	3,906 0 0
Perry (accepted)	3,671 0 0

Alterations to the Marlborough Arms, Chelsea, for Mr. Wykes. Mr. R. W. Hart, architect:—

Day	£777 0 0
Lawrence & Baugh	675 0 0
Turner & Son	670 0 0
Whittaker	670 0 0
Langmead & Way	660 0 0
Kelley	613 0 0

For the new Infirmary, Hastings Union. Quantities supplied. Mr. Thomas Elworthy, architect:—

Parks	£2,694 0 0
Geary	2,632 0 0
Bourne	2,537 0 0
Hughes	2,488 0 0
Jones	2,475 0 0
Rodda	2,438 0 0
Howell	2,389 0 0
Wigmore	2,380 0 0
Vidler, jun. (accepted)	2,349 0 0

For roads and sewers on an estate at Penge, for the London and Suburban Land Company. Messrs. Hammack & Lambert, architects:—

Reddin	£8,540 0 0
Wainwright	7,600 0 0
Benthorn	7,234 0 0
Ossington	7,110 0 0
Crockett	7,100 0 0
Nicholson	7,080 0 0
Mayo	7,051 0 0
Bish	7,050 0 0
Pound	7,033 0 0
Lawrence	6,460 0 0
Pizzey	6,450 0 0
Clark	6,389 0 0
Bloomfield	6,243 0 0
Hubbard (accepted)	5,930 0 0

For repairs, papering, &c., to 31, Finsbury-square, London, for Royal Maternity Charity. Messrs. Goulty & Gibbins, architects:—

Wood	£298 0 0
Nightingale	288 0 0
Burton & Moreland	285 0 0
Geddes	285 0 0
Revised Tenders from two last Builders.	
Burton & Moreland	£272 0 0
Geddes (accepted)	270 0 0

For four detached dwelling-houses at Malden, Surrey, for Mr. Charles Blake. Mr. Henry Peak, architect. Quantities by Messrs. Rake & Ranwell:—

	With 26 oz. Sheet.	With Plate.
Hill, Claxton, & Hobbs	£9,234 10 4	
Loe	8,020 0 0 ...	£8,210 0 0
Parker	7,991 5 6 ...	8,137 5 6
Swayne & Sons	7,904 0 0 ...	8,082 0 0
Jones		7,750 0 0
Hall, Bull, & Co.	6,926 0 9 ...	7,211 14 0
Todd & Saunders	7,000 0 0 ...	7,130 0 0
Newman & Mann	6,950 0 0 ...	7,030 0 0
Nightingale	6,700 0 0 ...	6,850 0 0
Weir	6,933 9 2 ...	6,991 9 2
Regis	6,614 0 0 ...	6,734 0 0
Collings	6,525 0 0 ...	6,683 12 0
Jarrett (accepted)	6,350 0 0 ...	6,445 0 0

For house, Coldharbour-road, Dorking, for Mr. John Abel. Mr. T. J. Dibble, architect:—

Lynn & Dudley	£590 0 0
Hamblin	555 0 0
Inkpen	485 0 0
Taylor	479 0 0
Putney	460 10 0

For houses at Westcott, for Mr. Thos. Paine. Mr. T. J. Dibble, architect:—

Putney	£3,050 0 0
Inkpen	3,023 14 7
Hamblin	2,827 0 0
Lynn & Dudley	2,690 0 0

For erecting fire-station at Fulham, for the Metropolitan Board of Works:—

Wittick (accepted)	£690 0 0

For painters' work at the East London Union Workhouse, Homerton, Middlesex. Messrs. Jarvis & Son, architects:—

King & Son	£294 0 0
Mason	290 0 0
Godwin	254 0 0
Pickering & Son	240 0 0
Keeps & Son	178 10 0

For alterations to Stone Hall, Oxted, Surrey, for Mr. G. Barker. Messrs. Tolley & Dale, architects:—

Kesterton & Head	£475 0 0
Wright	350 0 0
Coleman	275 0 0
Galyer & Moon	260 0 0
Wallis	245 15 0

For rebuilding two houses with shops at Port Way, West Ham, for Mr. T. Hearn. Messrs. Tolley & Dale, architects:—

Hedges	£630 0 0
Ennor	624 0 0
Rivett	623 0 0
Smith	607 0 0
Cook	603 0 0
Hunt & Elkington	499 0 0